PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 42 £1.75
February/March

XL/XE

MULTI MOUSE

Full control for your programs



TURBO BASIC
full command list

CHEATING AT CASSETTE GAMES!
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ST FILE



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Quite simply the most astonishing digitised music ever heard on an Atari 8 bit computer! Two great sampled and cleverly edited tunes that play on forever. You won't believe your ears!

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The BIG DEMO is a double sided disk in enhanced density and will only run on a XL/XE with 1050 drive

WARNING: Some of the scrolling messages on this disk contain words that some people might object to and the disk should not be considered suitable for young children

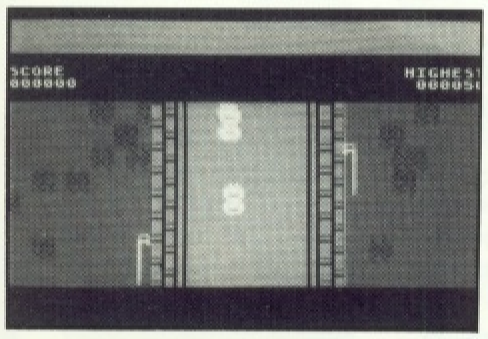
NOTE: For every disk sold a donation will be made to the High Tech Team in appreciation of the best 8-bit demo we have ever seen. If you like this demo we may be able to encourage these Atari 8-bit wizards to do more!

THE BEST XL/XE SOUND AND GRAPHICS DEMO EVER?

'The magazine for the Dedicated Atari User'

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Issue 42 February/March 1990



HOT ROD RAIDER
Fast 1 or 2 player action

THE ST FILE

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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

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Elsewhere (Air)	£42.00

SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

The next issue of NEW ATARI USER will be on sale 22nd March
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PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 42
February/March 1990

'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham worked late into the night just before Christmas last year to get it done before going on holiday

Sandy looked after the advertising and mail order and did enough work for two

John R. Barnsley played a lot of extra time without being paid (is he ever paid?)

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Garry Francis
Matthew Jones
John Davison jr
Paul Rixon
Ian Finlayson
Mark Hutchinson
John Davison
John Sweeney
Damon Howarth

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

The three Johns and Peter made the copy date. Who didn't then?

The cover picture is by **Paul Lingwood** and the mice (other than the grey one attached to the computer) are courtesy of Darrall's Pet Shop, Marston Road, Stafford. Anyone know how to get droppings out of a 130XE?

As I type Neil Young blasts out, sometimes quietly, sometimes rattling the windows. Others who helped included Dolores Keane with a brilliant new album, Joan Baez with a new one as strong as ever, Chris Rea's Road To Hell, Roy Orbison and Friends, Mick Hanly, Kate Bush and, as ever, Nanci Griffiths. If Roots Records do their stuff then Mary Black and Eric Bogle might also help out. It has to be said, though, that the biggest inspiration this time was not the music but the lure of the sunshine! Christmas in the sun, yeah! (Garry Francis says, so what!)

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, STWriter, Protext and Fleet Street Publisher.
Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

Welcome to another year in which the 8-bit Atari is set not only to survive but prosper more than it has done for the past couple of years! The news columns in this and the last issue, whilst still a little sparse, give details of new releases expected this year and it is good to know that the new companies are including the Atari in their release schedules. The biggest problem will be actually getting these games distributed because all the big distributors are no longer interested (were they ever?) and it will be up to the smaller companies and the software publishers themselves to get the product out. Companies like Zeppelin and Byte Back are working hard to get the multiple chains like W.H. Smith to once again take Atari product and we wish them well. Let's hope it happens.

START WITH APOLOGIES!

Now is as good a time as any to give you the regular apologies for a problem that continues to plague us - the acknowledgement of your contributions. We do appreciate all of your contributions but continually find ourselves in the position of failing to advise contributors whether their work is acceptable for publication. It is a major failing for which I apologise but it is a problem that continues year to year.

Many times in the past year I have sat down with the intention of going through all outstanding contributions and sorting them out but it is never as easy as it seems and I always run out of time. Assessing the worth of a contribution is not the straightforward five minute job many people seem to think it is. The easiest thing to do is to take a quick look and decide that something requires too much work on it and dismiss it, but then you tend to throw out some good material. Several times I have decided to reject something, then looked at it months later only to decide that is was in fact quite good! Time factors, and the lack of help, means that most contributions are considered only when a magazine is due and those that don't make it for a particular issue are put back in the pile for the next time. That does tend to keep many people waiting for a long time but it also means that most contributions are still in with a chance each issue. Who knows, the next issue of New Atari User to drop through your door, could have your program or article in, as many readers have discovered to their surprise in the past year!

Please keep sending all sorts of contributions but please be patient. If you need a quick answer then you can always ring us, but remember the easiest answer is no!

STOS SUCCESS

Our STOS column seems to be well received in all quarters and hopefully our decision to accept this as the Basic which we will support, will pay off. It seems quite likely that STOS will be around for many, many, years which is more than can be said for most other Basics on the ST. FAST BASIC was going to be the trendsetter but has now entirely disappeared, GFA is still around and going strong but only in small enclaves, HiSoft failed to promote their excellent POWER BASIC and others like OMICRON BASIC, whilst strong on the Continent, failed to make it over here.

STOS has been regarded by many as a 'play' language and not really a proper Basic but there are now several commercial programs available written in STOS and dozens of excellent public domain programs. As the programmers get better, the line between a STOS program and any other program (even if written in machine code) becomes more and more blurred and I defy any ordinary user to tell the difference. Probably the thing that will ensure success is the fact that the authors thought ahead and wrote STOS so that it could be easily expanded and updated. As I write this, the new STE has just reached these shores and the present STOS will not run with the new ROMs, but already Francois Lionet (author of STOS) has written a patch to upgrade all versions of STOS to run on the new machines. Francois thought about changes to the operating system when designing STOS and wrote it in such a way that it can be adapted to suit any operating system. What's more you adapt it yourself by running a program supplied in the public domain, you don't even have to return your disks or go out and buy new versions. Wouldn't it be nice if all the software publishers had had such foresight? There wouldn't then be so many problems each time Atari change their machines.

INTO THE NINETIES

What's going to happen during 1990? No predictions but it looks like Atari should have a good year both with the 8-bit and ST. The major problem with the XL/XE continues to be the lack of disk drives. It is possible to run non-Atari drives, even 3.5" drives, with the XL/XE and with drives available at around £80, I cannot understand why nobody has considered marketing a suitable interface. There are interfaces around, and in use, so why, oh why, doesn't someone start manufacturing them? It must be worthwhile and we would be quite happy to help market such an interface.

HOW TO TYPE IN THE LISTINGS and get them right!

The program listings in NEW ATARI USER are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO 3 you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program printed in NEW ATARI USER begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO 3 LISTING PLEASE DO SO NOW. The program can be used as you type in each line of a program or to check an already typed program. The code for each line will match but if you have problems check the listing conventions below carefully, you are most probably typing a CONTROL character incorrectly. TYPO 3 cannot check whether a line has been missed so if you have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO 3

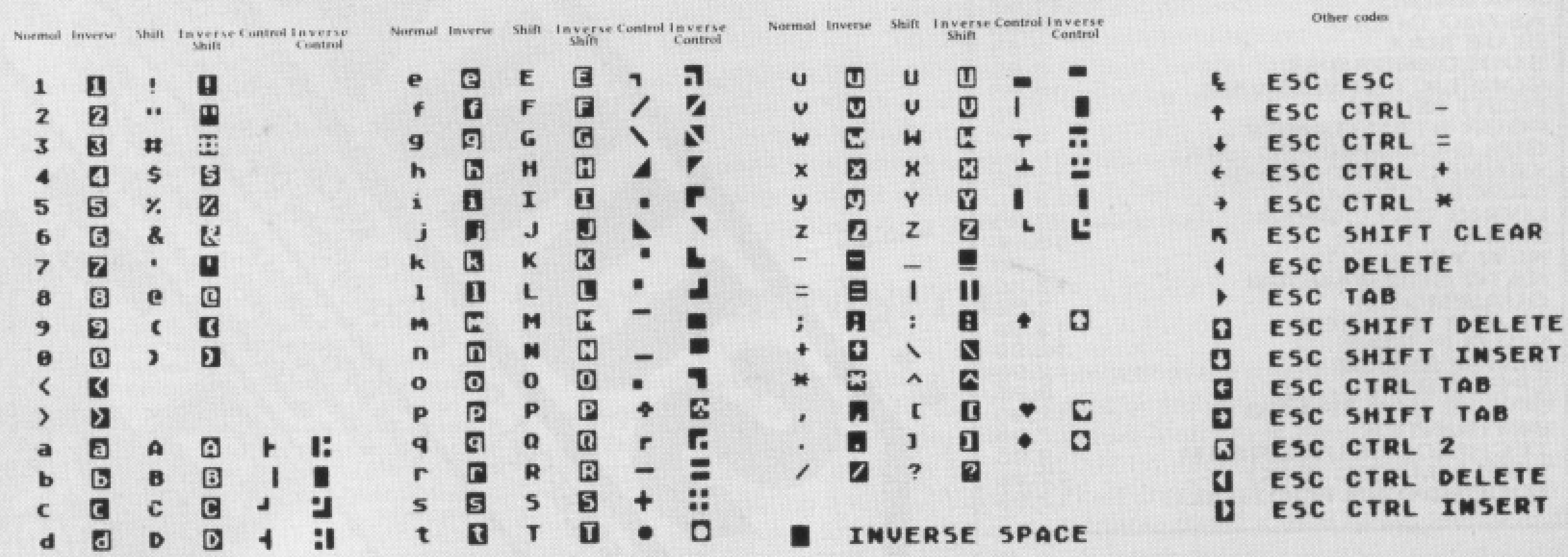
1. Type in the listing carefully for although you can use TYPO 3 to check itself (see 6 below) it may not work if you have made mistakes.
2. SAVE or CSAVE a copy of the program.
3. Each time you want to type in a program listing RUN TYPO 3 first. The program will install a machine code routine in memory and then delete itself. Now type in a line as shown in the magazine *excluding the first two letter code* and press RETURN.
4. A two letter code will appear at the top left of your screen. If this code matches the one in the magazine carry on and type the next line. Note, the code will not match if you use abbreviations. If you prefer to use abbreviations LIST the line you have just typed, move the cursor to that line and press RETURN. The code should now match.
5. If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.
6. To check a line you have already typed LIST the line, place the cursor on that line and press RETURN.
7. When you have finished a listing just SAVE or CSAVE it in the normal way.

You can type in a program without using TYPO 3 and then check it by SAVEing or CSAVEing a copy of the program, running TYPO 3 and then LOADing or CLOADing your program and proceeding as in step 6 above.

Always SAVE or CSAVE a program before running it and always use TYPO before telling us that a program will not run.

OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE and earlier 8-bit machines

```
EI 1 REM *******************************
AL 2 REM *  TYPO III by Alec Benson    *
         *          June 1985          *
SA 3 REM * A proofreader for ANTIC and *
         *   PAGE 6 based on TYPO II   *
         * published by ANTIC magazine *
EL 4 REM *******************************
SG 100 GRAPHICS 0
WG 110 FOR I=1536 TO 1791:READ A:CK=CK+A:
   POKE I,A:NEXT I
CG 120 IF CK<>30765 THEN ? "Error in DATA
    statements - Check Typing":END
YM 130 A=USR(1536)
VT 140 ? :? "TYPO III is up and running":
   NEW
MA 1000 DATA 104,160,0,185,26,3,201,69
HG 1010 DATA 240,8,200,200,200,192,36,208
QB 1020 DATA 242,96,200,169,79,153,26,3
RK 1030 DATA 200,169,6,153,26,3,162,0
RR 1040 DATA 189,0,228,157,79,6,232,224
TO 1050 DATA 15,208,245,169,93,141,83,6
KC 1060 DATA 169,6,141,84,6,173,4,228
EU 1070 DATA 105,0,141,95,6,173,5,228
BK 1080 DATA 105,0,141,96,6,169,0,162
KK 1090 DATA 3,149,203,202,16,251,96,0
ZR 1100 DATA 0,0,0,0,0,0,0,0
LD 1110 DATA 0,0,0,0,0,0,32,94
JM 1120 DATA 6,8,72,201,155,240,55,230
TV 1130 DATA 203,133,209,138,72,169,0,133
TW 1140 DATA 208,162,8,10,38,208,6,209
MF 1150 DATA 144,7,24,101,203,144,2,230
RL 1160 DATA 208,202,208,239,133,207,24,1
    65
TM 1170 DATA 204,101,207,133,204,165,205,
    101
AW 1180 DATA 208,133,205,165,206,105,0,13
    3
XH 1190 DATA 206,104,170,104,40,96,138,72
NR 1200 DATA 152,72,162,0,134,207,134,208
GF 1210 DATA 160,24,6,204,38,205,38,206
EA 1220 DATA 38,207,38,208,56,165,207,233
TM 1230 DATA 164,170,165,208,233,2,144,4
SK 1240 DATA 134,207,133,208,136,208,227,
    162
CB 1250 DATA 8,165,207,133,204,165,208,6
XN 1260 DATA 204,42,201,26,144,4,233,26
MB 1270 DATA 230,204,202,208,242,133,205,
    169
BC 1280 DATA 128,145,88,200,192,40,208,24
    9
WV 1290 DATA 165,204,105,160,160,3,145,88
QA 1300 DATA 165,205,24,105,161,200,145,8
    8
MQ 1310 DATA 32,69,6,104,168,76,153,6
```



newscene

NEW ATARI GAMES

Atari plan to continue to support the XL and XE throughout this year with around six new software titles per month planned, some of which have already been announced. Ones to look out for now are **SPEEDHAWK** and **HEARTACHE** which have already been mentioned in these pages, **CONTAGION** and **Z-FORCE** written by the folks responsible for CYGNUS XI plus **ZONE PATROL** and **TUBE BADDIES** which Bob Katz of Atari feels is a real classic "as good as many 16-bit games".

The games are certainly there, all Atari needs to do is to find effective means of distributing them which, with the major distributors not interested, is not an easy thing. We believe that talks were being held with several distributors just before Christmas and hopefully we'll see these games on sale quite soon with many more to follow throughout the year.

ZEPPELIN RISING

Zeppelin seem to have a had a quiet period Atari-wise (or is that just imagination?) but are back with a vengeance with five new releases planned for January and February. First up is **FANTASTIC SOCCER**, an eight-way scrolling game with shooting, tackles, corner kicks, the lot to bring the excitement of the soccer pitch to your keyboard. Zeppelin describe this one as being "as good as KICK OFF" Anco's big hit on the ST last year. Next is **MOUNTAIN BIKE RACER**, hastily renamed from Mountain Bike Simulator which Alternative managed to get out first, written by Ian Copeland, the man behind Draconus and Ninja Commando, and featuring many novel ideas. **SIDEWINDER** is a re-release of one of the classic British games from many years ago, a scrolling helicopter mission.

Later on will be **WORLD SOCCER** a simulation about ... er, soccer and **GO KART SIMULATOR** which sounds quite interesting.

Meanwhile Zeppelin are busy negotiating with other companies for more new Atari software and hopes to conclude a "major deal" quite soon which will bring a number of previously unreleased titles to the Atari. It is quite likely that more programmers will be required so if you are a dab hand at programming the Atari, preferably with some games already released give Brian Jobling a ring on 091 385 7755. Help him get that software out to us!

HARLEQUIN SUCCESS

Stephen Goss of the newly formed company, Harlequin, reports that response to the news item last issue asking for programmers to help with conversion work to the Atari was excellent and they now have enough programmers and products lined up to last them a couple of years!

Harlequin are still negotiating with some of the big boys for conversions of various titles to the Atari and have recently made an agreement with Mindscape. First title to be converted will be **FIENDISH FREDDIE** and there will be more to follow. Among those that may make it are Elite's **GHOSTS AND GOBLINS** and **1942** although Stephen is quick to point out that agreements and conversion work may take some time. He is anxious not to create too much hype and make empty promises so we need to be patient. Trouble is, what Harlequin are doing is big news for long starved Atari owners who want to know everything now!

If only a few of the titles Harlequin are going after make it, then it will be good news. Atari owners may well, at last, get some of the classics that have been around on other machines for many years.

Mailbag

Got a point to make?

Got any questions to ask?

Write to Mailbag P.O. Box 54 Stafford ST 16 1DR

THE ALTERNATIVE VIEW

I am writing in response to the Alternative Micro Show held in Stafford. This was the first Computer Show that I have attended and it won't be the last!

All that was missing was Father Christmas as it was a veritable grotto of Atari 8-bit delights. It was a wonderful experience to wander around actually buying software which I had previously only read about and loads of bargains to boot. I made four new Atari friends all of whom have written to me, after a year of thinking I was the only one out here. What a lovely bunch of people all the Atari owners are from the 'big boys' like Calisto and Page 6 down to some small 'two man' stands like Dean Garraghty and Derek Fern. Nothing was too much trouble for anyone and I thank everyone concerned for putting on a grand show.

The one thing I did notice was that, by far the largest crowd were Atari Users, need I say more! After five hours of aching feet, I tripped back to Liverpool complete with 28 new games and programs, approximately £120 lighter but what a day! Well worth it, I will definitely be going again in 1990. See you there!

Keith Taylor
Merseyside

FROM FAR AWAY

I travelled down to The Alternative Micro Show and Electronics Fair, a return journey of about 400 miles and I must say it was well worth the journey. I have already put the date of next year's show in my diary as a 'must'.

It was good to see the number of companies and User Groups that support the Atari 8-bit and to see that Atari is not just a games machine. Advice was freely given by both companies and User Groups and you were not pressurised into buying goods. Unfortunately the pocket and cheque book were not big enough to buy all the bargains.

I was also surprised to see the amount of support there was for the other 8-bit machines.

T.W. Wood
Hartlepool

AND FROM AN EXHIBITOR

I'd just like to let your readers know what a great show the Alternative Micro Show was. I was exhibiting at the show and had a great time. Not only did I have a profitable day, but had great fun trying to answer people's questions and also picked up a few bargains for myself! If there is anybody out there who didn't go, then you missed a good day. I made a few interesting discoveries during the day, people still want software on tape and the most popular type of software is utilities.

And now a few questions. Are Silica Shop still supporting the 8-bit Atari? Secondly, where can I get a printer ribbon for the XMM801 printer? I remember you saying in an article that this printer is really just a Shinwa CP80, so does this mean I can use a Shinwa ribbon in my printer?

Dean Garraghty,
Doncaster

It is great to get your feedback on the Alternative Micro Show. We had a great time but were curious to know how visitors would react since, by no stretch of the imagination, was this one the the flashy Atari Shows from yesteryear. It was relatively small and mixed a lot of different computers with radio, electronics and all sorts of odds and ends but it had more excitement than I have found at any show since the very first Atari Show. It was relaxed and interesting with plenty of room to wander around in comfort and lots to discover. We didn't need to sell a great deal, since the stands were so cheap, yet we had a great day and made more money than at the last Atari Show at Alexandra Palace!

The organisers have an Amateur Radio Rally booked for the end of April at the National Motorcycle Museum in Birmingham and asked us if we would be interested in coming along to a small Einsten and Atari Show to be held at the same time. Most definitely! This is likely to be a very small, informal, show - a chance to meet and chat - and we will let you know next issue if it comes off. We will also give you details of next year's Alternative Micro Show as soon as we know the details, that's for sure!

As for your questions, Dean, Silica are still supporting the 8-bit but only just, they only seem to be interested in what they have left in stock and, yes, a Shinwa CP80 ribbon does fit the XMM801. Try any of the 'blank disk merchants' you see in Computer Shopper and the like or, as a last resort, an office supplies shop. You'll pay a fortune at the latter though!

TRUE CONTACT

I thought I would drop you a line to say a very big thank you to the mag for a somewhat unusual reason. I

appreciate the articles, reviews and so forth but I have a special reason for being grateful.
You say you are always interested in new uses for the Atari, well how about computer dating! Let me tell you a little story. A few months ago I replied to an ad in your Contact column for a penpal, purely to exchange ideas etc., I found I was corresponding with a lovely lady of similar age and interests. Gradually Textpro files were flying up and down the country at an incredible rate anf things progressed to three hours on the phone every night (should get modems!). A while back we met and hit it off straight away, love reared its head and we are now planning our futures together!
I bet you didn't realise what goes on through your Contact column! Thank you from both of us, without Page 6 there would be no romantic evenings around the keyboard because we would never have met!
All the best and long live Page 6 from two devoted readers.

Rob and Fran

Nice story! Reminds me about Harry Clark many years ago (although he didn't fall in love!), anyone remember that? Are you still around, Harry? Trouble is, the Contact column is now going to be inundated with penpal requests. No personal videos, please!

NINJA AT LAST

I have recently written to System 3 about a conversion of either Last Ninja 1 or 2 and their latest game called Myth.
They answered my letter saying nothing has yet been produced but hopefully sometime in the near future a conversion will take place. I was overjoyed and I'm sure all those 8-bitters out there who have been waiting for The Last Ninja will be too.
I have a complaint about your mag. Not enough reviews for the 8-bit Atari. There is far too much on the ST, after all there are lots of mags for the ST and only one for the 8-bit. Also could you add some colour pictures to the mag. The Tipster, however, is great.

Stephen Gray
South Shields

P.S. Could you please print this letter?

Okay, Stephen, printed it is, even though it will make The Tipster even more difficult to keep under control! The Last Ninja is definitely being converted to the 8-bit although not by System 3. You should find it out on another label later in the year. As regards reviews for 8-bit products we've said it before and we'll say it again. If products are released we will review them. We can't write reviews on non-existent games. Every 8-bit game we receive for review is reviewed. One or two get missed because companies don't bother to send them to us. If you like writing letters why not write to every company that issues a new 8-bit game to ask them if they have sent NEW ATARI USER a review copy. That would help us and make sure you could read the review.

NO ARENA

After finally completing all I can in Alternate Reality: The Dungeon, I was wondering if Datasoft were ever going to release The Arena on any machine, let alone the 8-bit Atari!
Could you please find out for me if they are going to release it as I am desperate for something new to play on my trusty old Atari.

Andrew Hedges
Basildon

Sad news, Andrew. Datasoft were bought out by another company and there are no plans to continue the Alternate Reality series on any computer. Although the Arena was partly written, the new owners pulled the plug on further development and it looks like it will never appear. The chances of another company picking it up, particularly for the Atari, are very slim.

PASCAL

Please could you tell me if you know whether any version of Pascal has been produced for the 8-bit Atari. I have an XL with 1050 disk drive and I assume that I would have to advertise for a second hand version, but as it is just to keep my wife's hand in with this language, this would not be a problem.

K. L. Laidlaw
Hinckley

The only two versions of Pascal for the 8-bit Atari that we know of are Draper Pascal and Pascal Language System by APX, both issued many years ago in the States but never available over here. The chances of getting a copy now are remote but you might be lucky. The company that issued Draper Pascal is Draper Software, 307, Forest Grove, Richardson, Texas 75080, U.S.A. Whether they are still around is anybody's guess. APX was part of Atari and has long since disappeared but some APX programs are still around.

XL/XE TO ST

My son has recently had an Atari ST. He would like to learn typing skills and the small program K-TYPE in your magazine looks an ideal way to help. Could you tell me whether there is an easy way to change the listings for use with the ST or do you have the listings to enable him to type it in?

K. G. Mew
Shrewsbury

This enquiry is typical of many we receive from people who want to run the listings in NEW ATARI USER on their ST but, unfortunately, it cannot be done, at least not easily. If you were a very good programmer you could find ways to convert a program, or rather take the basis of a program and rewrite it, but there is no other way to use XL/XE listings on your ST. There is an XL Emulator available in the public domain but it is not suitable for beginners and would be very difficult to use unless you were already familiar with the XL or XE. Sadly, the ST is not a programmers machine in the same way as the 8-bit Atari is and in most cases you will have to resort to buying commercial software. Having said that, in this instance, help is at hand for we have an excellent new Typing Tutor written in STOS available as part of our public domain library. The program is better than some of the full price commercial programs yet costs a mere £2.95! If you haven't got our latest Accessory Shop update, drop us a line or give us a ring.

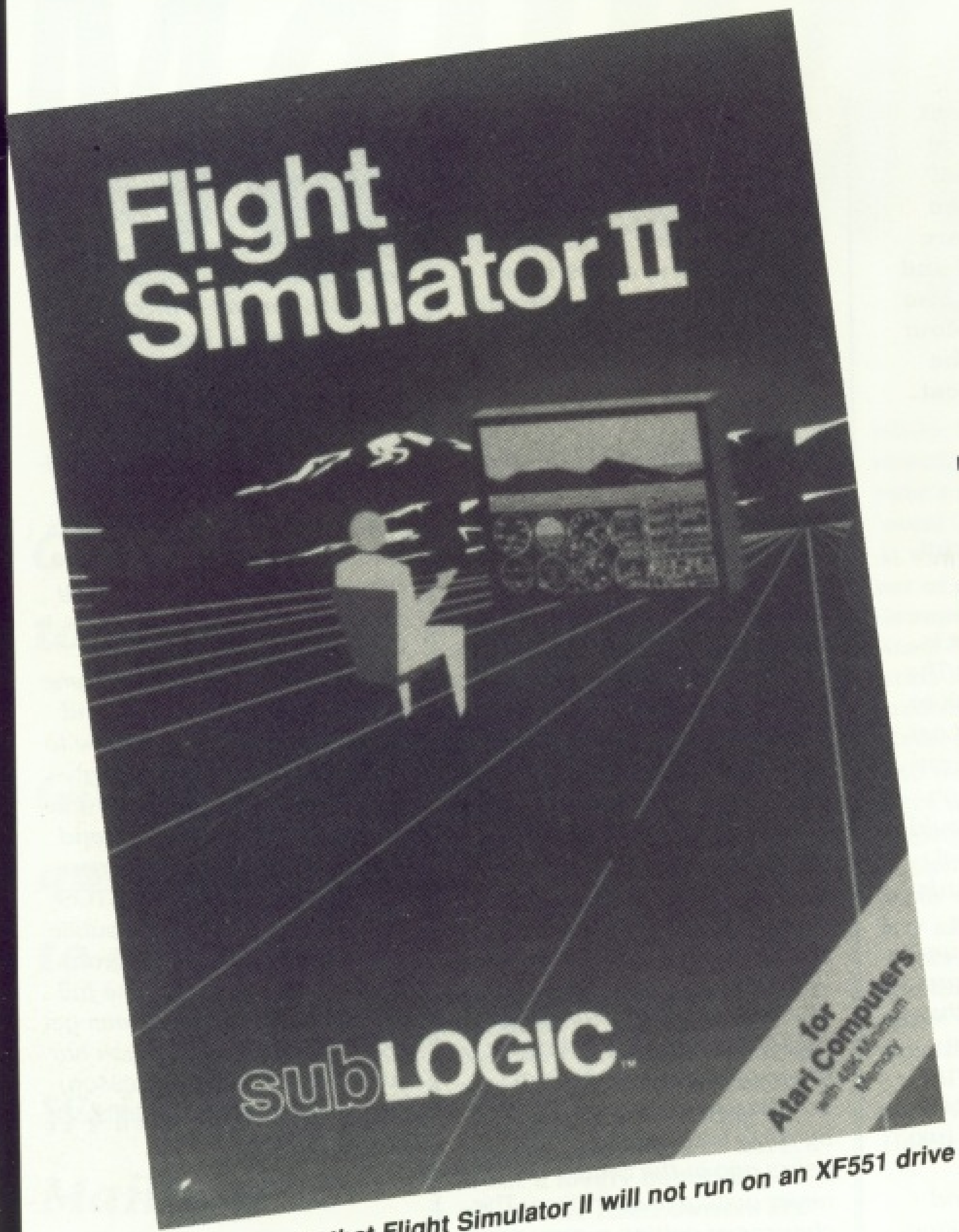
STACEY

My family has owned two 8-bit Ataris for several years, a 600XL and an 800XL. These give us a lot of pleasure, as does reading your magazine. From time to time we get problems which tempt us to write to you for a solution but a tendency to procrastinate means we never do - until now that is. Reading Issue 40 has left us with a question which compels us to break the habit of a lifetime and actually write to ask - what is Stacey supposed to do?

R Beardsmore,
Newark

Glad to see someone reads the cryptic messages! Stacey was supposed to help us out in all sorts of ways and generally be a nice person. Trouble is she upped and left us last year for a 'better' job but she still comes back to see what fun she is missing! ●

GO FLYIN



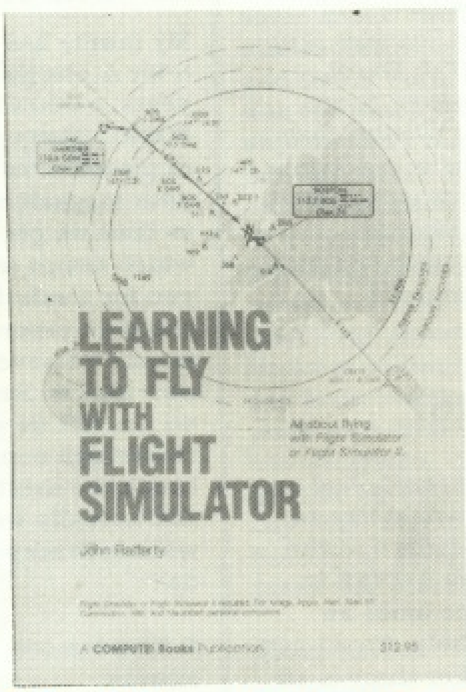
Please note that Flight Simulator II will not run on an XF551 drive

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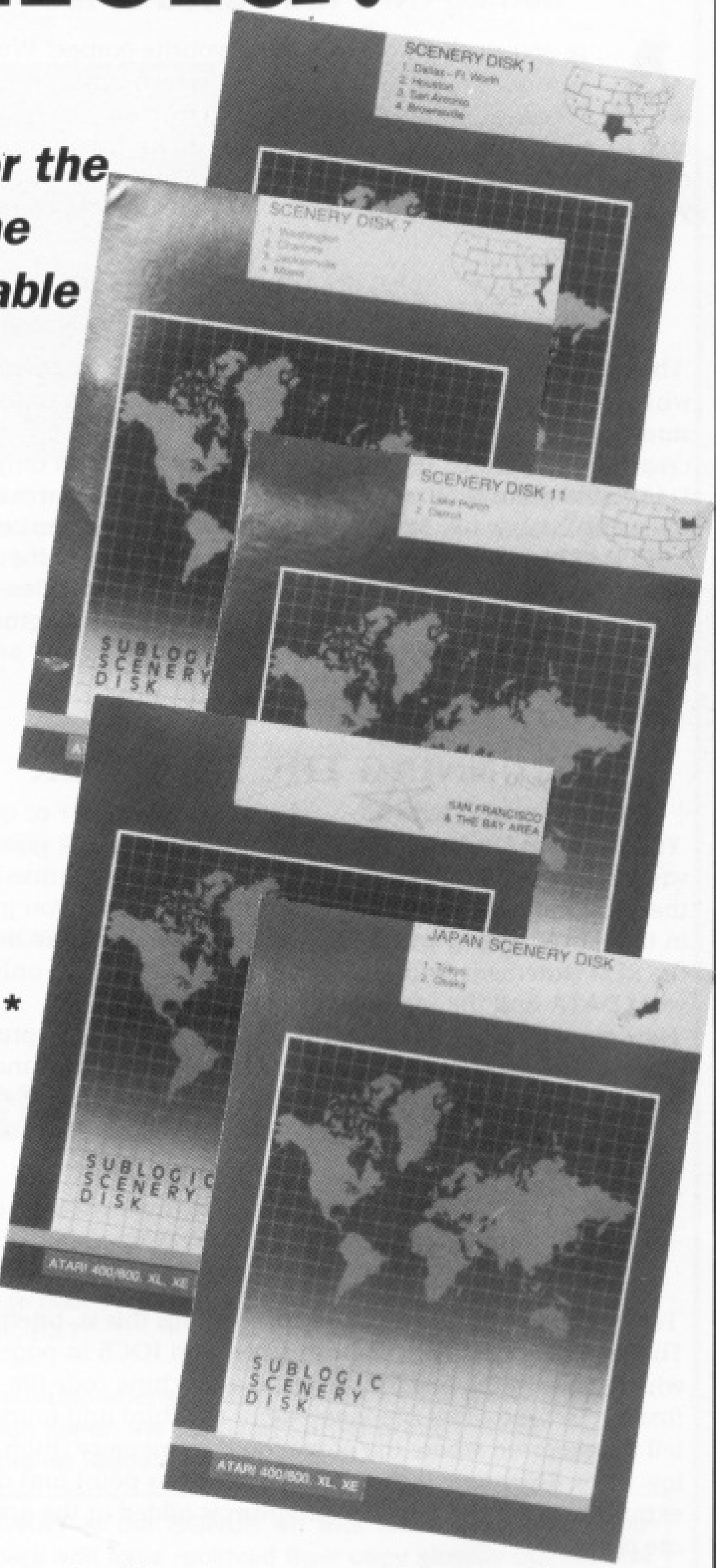
Get yourself a copy of one of the best prog-rams to have been written for the 8-bit Atari and we'll send you a copy of Learning to Fly worth £12.95 absolutely FREE! That's a grea offer on a great program

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Telephone orders accpeted on 0785 213928 using Access or Visa

G ON YOUR XL/XE

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These disks are available NOW and exclusively to readers of New Atari User. Our information is that these are the last remaining stocks Sublogic hold so it's first come, first served!

THE TAPESTER

Are you stuck on one of your favourite games? Wouldn't it be nice to see what that next screen is like, if only you could last long enough to get to it? Now you might be able to, if your favourite game is one that The Tapester recognises, for this utility, written especially for cassette users, enables you to amend certain games to make them easier to complete.

TYPING IT IN

The program listing contains a number of REM statements which refer to various games. Type the whole listing in as it stands and CSAVE a copy as your master. Alternatively you can create up to fourteen different programs by typing in only the DATA statement that refers to the game you wish to modify. You must ensure that the REM statement is left out and that only the word DATA and the numbers following are typed in. If you do the latter then the TYPO codes will not match so it is best to type in the lines with the REM statements and then remove them when you know your typing is correct.

RUNNING THE TAPESTER

You next need to create special listings for whatever game you wish to modify. If you have typed in and saved separate listings then you may just run the appropriate program. If you just typed in the master listing you should CLOAD that and then remove the REM statement from the appropriate line leaving only the word DATA and the numbers following.
Now place your game tape in your cassette deck and press PLAY. RUN The Tapester program and it will load the game and alter it before the game runs. Whatever cheat you have installed will then be in place and you should be able to get further than ever before!

HOW IT WORKS

For those who are interested in these things this is, briefly, what The Tapester does. The program sets up an IOCB in page 6 which loads in the first four bytes of a machine code file. The first and second bytes are ignored but the third and fourth bytes tell the program where the game loads in memory (high byte, low byte). The game is then loaded in at this point and then the extra data from the Tapester program is added at the appropriate point.
There is no formula for amending a game. All these cheats were discovered by trial and error using a disassembler. It takes a long time!

Anyone got any more cheats that can be added to this program? NEW ATARI USER would be delighted to publish amendments or enhancements to this program. Write to NEW ATARI USER, P.O. Box 54, Stafford, ST16 1DR.

```
CS 1 REM ##############################
VI 2 REM #        THE TAPE HACKER     #
LT 3 REM #              by            #
WW 4 REM #         Daniel Welch       #
HG 5 REM #                            #
SH 6 REM # -------------------------- #
LT 7 REM # NEW ATARI USER  February 90 #
CZ 8 REM ##############################
AK 10 GRAPHICS 0:? "PLEASE WAIT..."
ID 20 READ A:IF A<256 THEN POKE 1536+I,A:
   I=I+1:C=C+A:GOTO 20
WQ 30 IF C<>A THEN ? :? "ERROR IN DATA":
   END
ST 40 ? "LOADING..."
VY 50 Z=USR(1536)
NQ 60 DATA 169,12,162,16,141,82,3,32,86,2
   28,169,3,141,82,3,169,67,133,203,169,5
   8,133,204,169,203,141,84,3,169
NZ 70 DATA 0,141,85,3,169,4,141,90,3,169,
   128,141,91,3,162,16,32,86,228,169,7,14
   1,82,3,169,205,141,84,3,169,0
IC 80 DATA 141,85,3,169,4,141,88,3,169,0,
   141,89,3,162,16,32,86,228,160,3,185,20
   5,0,145,207,136,16,248,165,207
XE 90 DATA 24,105,4,141,84,3,165,208,105,
   0,141,85,3,169,255,141,88,3,141,89,3,1
   62,16,32,86,228,169,12,162,16
IL 100 DATA 141,82,3,32,86,228
MJ 110 REM BATTY BUILDERS DATA 169,169,14
   1,95,56,169,0,141,96,56,76,64,48,14028
JB 120 REM STRATOSPHERE DATA 169,173,141,
   145,57,76,0,36,13545
XQ 130 REM FIREFLEET DATA 169,11,141,144,
   61,76,178,58,13586
DJ 140 REM CAPTAIN STICKIES GOLD DATA 169
   ,234,141,94,72,141,95,72,141,96,72,76,
   38,35,14224
UZ 150 REM ATTACK OF MUTANT CAMELS DATA 1
   69,0,141,94,31,76,34,24,13317
KL 160 REM CRYSTAL RAIDER DATA 169,234,14
   1,239,17,141,240,17,141,241,17,76,0,12
   ,14433
TL 170 REM HOVER BOVER DATA 169,65,141,19
   ,81,76,0,48,13347
PC 180 REM DAN STRIKES BACK DATA 169,234,
   141,143,40,141,144,40,141,145,40,76,84
   ,27,14313
HJ 190 REM DIAMONDS DATA 162,10,189,140,6
   ,157,124,10,202,16,246,76,8,8,169,173,
   141,96,21,141,18,26,76,67,20,15050
DZ 200 REM ROBIN HOOD DATA 169,255,141,19
   3,44,76,35,44,13705
GP 210 REM AIRWOLF DATA 169,96,141,145,14
   7,32,6,147,169,234,141,7,23,141,8,23,1
   41,9,23,76,0,7,14633
OU 220 REM SUNSTAR DATA 169,96,141,164,34
   ,32,198,33,32,18,34,169,190,141,188,13
   2,169,132,141,189,132,76,3,128,15489
CL 230 REM THRUST DATA 169,234,141,114,13
   4,141,115,134,76,0,86,14092
QM 240 REM PANTHER DATA 169,96,141,49,16,
   32,6,16,169,234,141,58,94,141,59,94,76
   ,0,48,14387
```

THE TAPESTER

Here's what you can do to your favourite games

BATTY BUILDERS	makes the player immune to falling bricks and dynamite!
STRATOSPHERE	Infinite lives to make the game a bit easier!
FIREFLEET	removes collision detection so that you can fly through anything!
CAPTAIN STICKY'S GOLD	Infinite lives again!
ATTACK OF THE MUTANT CAMELS	Get your own back on those camels with indestructibility!
CRYSTAL RAIDER	Infinite lives!
HOVER BOVVER	Now you can start up to level 16!
SUNSTAR	Infinite energy!
ROBIN HOOD	255 lives to make things easier!
DIAMONDS	Complete this classic with infinite lives!
THRUST	Infinite lives again!
PANTHER	Infinite lives!
AIRWOLF	Have a go at level 5 - it's unbelievable!
DAN STRIKES BACK	Crack this old favourite with infinite lives!

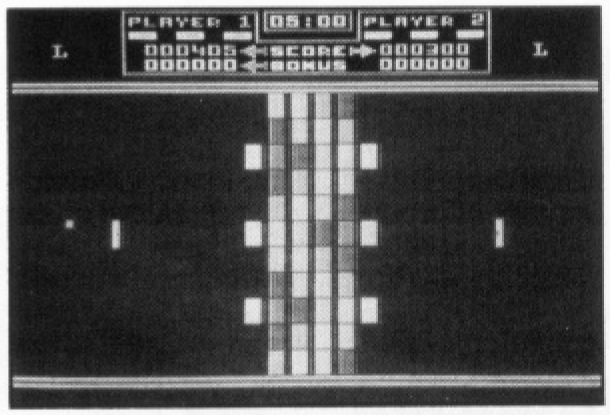
Daniel Welch's program could put the Tipster out of a job! Now you can cheat on over a dozen top Atari cassette games

DISK BONUS

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by Trevor Briscoe

A superb variation on one of the all time classics with a construction set to build your own games



Brik-Bat is a game for two players (one can be the computer) who control bats at either side of the play area. The object is to finish the game with more points scored than the opponent. The game ends when the game timer runs out (if operating) or when either player has no bats left. The player with the highest score wins regardless of the number of bats left.

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- 1 or 2 players
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Create your own screens or modify the existing screens with the Brik-Bat Construction set. Lots of features in the easy to use edit mode. Hundreds of screens may be created and saved to disk or cassette to create your own unique version of BRIK-BAT.

The are comprehensive instructions for the game and construction set on the disk and further printed copies are available on request.

BRIK-BAT is the BONUS on this issue's disk. Disk subscribers will have received their copy already but the disk is available separately for just £2.95. Send a cheque or Postal Order with a written order to PAGE 6, P.O. Box 54, Stafford ST16 1DR or use the order form on page 49

BRIK-BAT IS ALSO AVAILABLE ON CASSETTE - SEE PAGE 49

MACHINE CODE LIBRARY

In the sixth and final part of this series, Stephen Williamson presents some odd routines to include in games or serious programs

There is no theme to this, the last part of the Machine Code Library series. There are four short unrelated machine code routines that can be used in a variety of ways.

All the source code listings were written using the MAC/65 Assembler cartridge but should work with all Atari assemblers. For non Machine Code users I have included BASIC listings that set up the machine code routines in a BASIC program. No knowledge of machine code is needed to use the BASIC versions.

A QUICK FLASH!

The first routine adds a flashing cursor to the standard text (Mode 0) screen. Lots of computers, including the Atari ST, have flashing cursors built into the operating system. A flashing cursor is especially useful in word processing. I am writing this using Superscript (the best word processor for the Atari XL/XE). When the screen is full of text a non flashing cursor can take a frustrating amount of time to locate whereas Superscript's flashing one is always noticeable.

Location 755 is known as the Character Mode Register. Various values can be stored in this register to affect both the cursor and the characters. A Zero is normal inverse characters, 1 is blank inverse, 2 means normal characters and 3 is solid inverse. Poke 755 with a value between 4 and 7 and the characters invert! Impressive - but not a lot of practical use. The cursor is transparent with values 2 and 6, and absent with a value of 1.

The cursor flash program sets up a Vertical Blank Interrupt routine that alternately puts a value of 1 and 2 in register 755. This switches the cursor off and on.

Listing 2 is a BASIC routine that sets up the VBI. After the program stops at line 110 you can then do all onscreen editing with the flashing cursor. You can type in all those program listings without fear of losing the cursor in a mass of text.

One effect of the routine is that all inverse characters also flash. This can be a useful means of highlighting text or messages in a program. For routine editing purposes I have stopped the user from writing inverse characters by storing a value of zero in register 694, the Inverse Character Flag. This trap can be removed by deleting lines 270 and 280 in the source code or by adding the commands found in line 100 in Listing 2. Three NOP (No operation) instructions are added to the machine code.

The speed of the flashing cursor is controlled by the DELAY register (205). This is set to a value of 8. To change the rate alter line 190 in the source code or add a line 55 to the BASIC program:

```
55 POKE 204,n
```

where n is the delay value that you want to use.

GRID EDIT

Listing 3 is a routine to put your Atari into grid edit mode. Of all the routines in this series this is perhaps the least useful unless you do a lot of maths in squared exercise books and miss the square environment. It is a routine searching for an application. Write to New Atari User if you find something to do with it. The routine works by modifying the standard Atari character set. By performing an ORA operation, a vertical line is added to each character and then a horizontal line is added to the top of each character. When editing in this mode all letters fit inside the squares that make up the grid.

Listing 4 is the BASIC version. Hope you are impressed!

```
10 ;--------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 6 - ODDS AND ENDS
60 ;LISTING 1 - CURSOR FLASH
70 ;--------------------------
80        *=  1536
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 CHACT = 755
0130 COUNT = 204
0140 DELAY = 205
0150 FLAG =  206
0160      LDA #0
0170      STA COUNT
0180      STA FLAG
0190      LDA #8       Change value to
0200      STA DELAY    affect speed.
0210      LDA #6
0220      LDY #VBROUT&255
0230      LDX #VBROUT/256
0240      JSR SETVBV
0250      RTS
0260 ;
0270 VBROUT LDA #0    Delete lines 280
0280      STA 694      and 290 to allow
0290      INC COUNT    inverse letters.
0300      LDA COUNT
0310      CMP DELAY
0320      BNE EXIT
0330      LDA #0
0340      STA COUNT
0350      LDA FLAG
0360      CMP #0
0370      BEQ CURSERON
0380 CURSOROFF LDA #1
0390      STA CHACT
0400      LDA #0
0410      STA FLAG
0420      JMP SYSVBV
0430 CURSERON LDA #2
0440      STA CHACT
0450      LDA #1
0460      STA FLAG
0470      JMP SYSVBV
0480 EXIT JMP SYSVBV
```

Right and far right - Listings 3 and 4 - Grid Edit

```
NL 10 REM MACHINE CODE LIBRARY
MO 20 REM by Stephen Williamson
PH 30 REM for New Atari User
LZ 40 REM PART 6 - ODDS AND ENDS
ZP 50 REM LISTING 4 - GRID EDIT
BD 60 DIM GRID$(80)
OZ 70 FOR N=1 TO 76
BK 80 READ A:GRID$(N,N)=CHR$(A)
KQ 90 NEXT N
NL 100 A=USR(ADR(GRID$))
TJ 110 STOP
OP 120 DATA 104,169,0,141,198,2,162,0,189
   ,0,224,9,128,157,0,144,189,0,225,9,128
VL 130 DATA 157,0,145,189,0,226,9,128,157
   ,0,146,189,0,227,9,128,157,0,147,232
BD 140 DATA 208,221,169,144,141,244,2,162
   ,0,160,0,169,255,157,0,144,157,0,145,1
   57
OV 150 DATA 0,146,157,0,147,232,200,192,7
   ,208,250,232,208,231,96
```

Left and above - Listings 1 and 2 - the flashing cursor

```
NL 10 REM MACHINE CODE LIBRARY
MO 20 REM by Stephen Williamson
PH 30 REM for New Atari User
LZ 40 REM PART 6 - ODDS AND ENDS
UW 50 REM LISTING 2 - CURSOR FLASH
KW 60 FOR N=0 TO 70
TE 70 READ A:POKE 1536+N,A
KP 80 NEXT N
SG 90 A=USR(1536)
PA 100 REM ADD - POKE 1536+23,234:POKE 15
   36+24,234:POKE 1536+25,234 - TO ALLOW
   INVERT KEY
TJ 110 STOP
TF 120 DATA 104,169,0,133,204,133,206,169
   ,8,133,205,169,6,160,21,162,6,32,92,22
   8
OV 130 DATA 96,169,0,141,182,2,230,204,16
   5,204,197,205,208,34,169,0,133,204,165
   ,206
PW 140 DATA 201,0,240,12,169,1,141,243,2,
   169,0,133,206,76,95,228,169,2,141,243
EQ 150 DATA 2,169,1,133,206,76,95,228,76,
   95,228
```

```
10 ;--------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 6 - ODDS AND ENDS
60 ;LISTING 3 - GRID EDIT MODE
70 ;--------------------------
80        *=  20000
90        .OPT OBJ
0100 CHSET = 57344
0110 CHBASE = 36864
0120      LDA #0       Change colour.
0130      STA 710
0140 ;--------------------------------
0150 ;Copy standard character set to
0160 ;CHBASE. Perform OR operation
0170 ;to add horizontal line.
0180 ;--------------------------------
0190      LDX #0
0200 L1   LDA CHSET,X
0210      ORA #128
0220      STA CHBASE,X
0230      LDA CHSET+256,X
0240      ORA #128
0250      STA CHBASE+256,X
0260      LDA CHSET+512,X
0270      ORA #128     line.
0280      STA CHBASE+512,X
0290      LDA CHSET+768,X
0300      ORA #128
0310      STA CHBASE+768,X
0320      INX
0330      BNE L1
0340      LDA #144
0350      STA 756
0360      LDX #0
0370 ;--------------------------------
0380 ;Add line to top of characters.
0390 ;--------------------------------
0400 L2   LDY #0
0410      LDA #255
0420      STA CHBASE,X
0430      STA CHBASE+256,X
0440      STA CHBASE+512,X
0450      STA CHBASE+768,X
0460 L3   INX
0470      INY
0480      CPY #7
0490      BNE L3
0500      INX
0510      BNE L2
0520      RTS
```

Other listings overleaf

THE RANDOM FACTOR

Listing 5 does have a use, especially if you are programming a card game. It simulates shuffling a deck of cards but can also be used whenever you want to randomly sort a group of numbers. It is copied from a section of Las Vegas Casino which I wrote for Zeppelin.

Line 160 determines the 'depth' of the sort which simulates how long the shuffle goes on for and the chances of an individual card remaining in the same position. The 'depth' is set to 100 but this can be altered in line 160.

Lines 180 to 250 place the 52 values that represent the cards in order starting from location 19000. This stack area is given the label STORES and represents the deck. At this stage the program simulates a new deck of cards when all the cards are in order. The shuffle routine (lines 280 to 500) then randomly rearranges the numbers.

To sort less or more than 52 numbers alter line 180, or in the BASIC version (Listing 6), change the value of the variable N1 in line 70.

SPEED OF SORTS

The final routine is an example of a machine code sort. There are many applications where data needs to be sorted and there are various methods of doing this. The insertion sort puts a mixed group of numbers in ascending order. If you want descending order then just reverse all the numbers once the sort is complete. The program can sort any number of values but each value must be between 0 and 255, because computers don't like counting above 255.

The Insertion Sort is not a particularly quick sorting method but is one of the simplest to understand. A sort of over 50 numbers takes a few seconds but that is a considerable improvement over the BASIC version of the Insertion Sort. This type of sort is not recommended for large numbers of data - your Atari could be kept busy for a long time sorting a group containing a few thousand numbers. There are sort routines which are quicker but they are much more complex. The program works through the stack of numbers examining each pair of numbers it finds. If the first number is larger than the second, it swaps the pair of numbers around. If a swap occurs then a flag is set to 1 (lines 400 and 410). The routine keeps doing this, going up and down the stack again and again until no more swaps are possible i.e. when the FLAG value is zero which means that all the numbers are in ascending order.

Lines 180 to 230 in Listing 7 and lines 80 to 100 in Listing 8 put random numbers in the stack area (labelled STORES), but of course this part of the routine can be deleted if the routine is part of a program that has already allocated values to the STORES. In the machine code version STORES start at location 19000, but to prevent a clash with other areas of a BASIC program, the BASIC version puts the stack starting at 1536. This restricts the maximum number of data to 256 in the BASIC version.

So that's it - the end of the series. I hope that you have found some of the machine code routines useful. All the routines have been written to be adaptable so that you can customise them for your own programs. If you are not already a machine code programmer then I would recommend learning machine code - its more difficult than BASIC but its not that difficult and it does allow you to do so much more with your Atari.

MACHINE CODE LIBRARY

```
10 ;-----------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 6 - ODDS AND END
60 ;LISTING 5 - SHUFFLE
70 ;-----------------------
80        *=  20000
90        .OPT OBJ
0100 STORES = 19000
0110 COUNT = 204
0120 NUMBER = 205
0130 ;---------------------
0140 ;Fill stores with
0150 ;consecutive numbers
0160 ;---------------------
0170      LDA #100
0180      STA COUNT
0190      LDA #52
0200      STA NUMBER
0210      LDX #0
0220 L1   TXA
0230      STA STORES,X
0240      INX
0250      CPX NUMBER
0260      BNE L1
0270 ;------------------------
0280 ;Random shuffle routine
0290 ;------------------------
0300 L2   JSR RND
0310      TAX
0320      LDA STORES,X
0330      PHA
0340      JSR RND
0350      TAY
0360      LDA STORES,Y
0370      STA STORES,X
0380      PLA
0390      STA STORES,Y
0400      DEC COUNT
0410      LDA COUNT
0420      CMP #0
0430      BNE L2
0440      RTS
0450 RND LDA 53770
0460 L3   CMP NUMBER
0470      BCC EXIT
0480      SEC
0490      SBC NUMBER
0500      JMP L3
0510 EXIT RTS
```

```
10 ;---------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 6 - ODDS AND ENDS
60 ;LISTING 7 - INSERTION SORT
70 ;---------------------------
80        *=  20000
90        .OPT OBJ
0100 STORES = 19000
0110 COUNT = 204
0120 FLAG =  200
0130 ;
0140      LDA #50
0150      STA COUNT    Size of sort
0160      LDA #0
0170      STA FLAG
0180      LDX #0
0190 L1   LDA 53770    Fill stores with
0200      STA STORES,X random numbers.
0210      INX
0220      CPX COUNT
0230      BNE L1
0240 ;-------------
0250 ;SORT ROUTINE
0260 ;-------------
0270 L2   LDX #0
0280      STX FLAG
0290      LDY #1
0300 L3   LDA STORES,X
0310      CLC
0320      CMP STORES,Y
0330      BEQ L4
0340      BCC L4
0350      PHA
0360      LDA STORES,Y
0370      STA STORES,X
0380      PLA
0390      STA STORES,Y
0400      LDA #1
0410      STA FLAG
0420 L4   INX
0430      INY
0440      CPX COUNT
0450      BNE L3
0460      LDA FLAG
0470      CMP #0
0480      BEQ EXIT
0490      JMP L2
0500 EXIT RTS
```

```
NL 10 REM MACHINE CODE LIBRARY
MO 20 REM by Stephen Williamson
PH 30 REM for New Atari User
LZ 40 REM PART 6 - ODDS AND ENDS
UL 50 REM LISTING 6 - SHUFFLE
QZ 60 COUNT=204:NUMBER=205:STORE=1590
WR 70 N1=52
MZ 80 POKE COUNT,100:POKE NUMBER,N1
YW 90 FOR N=0 TO N1
DT 100 POKE N+STORE,N
HR 110 NEXT N
XA 120 FOR N=0 TO 45
YI 130 READ A:POKE 1536+N,A:NEXT N
YO 140 A=USR(1536)
TR 150 STOP
OA 160 DATA 104,32,32,6,170,189,54,6,72,3
   2,32,6,168,185,54,6,157,54,6,104
KZ 170 DATA 153,54,6,198,204,165,204,201,
   0,208,226,96,173,10,210,197,205,144,6,
   56
QS 180 DATA 229,205,76,35,6,96
```

```
NL 10 REM MACHINE CODE LIBRARY
MO 20 REM by Stephen Williamson
PH 30 REM for New Atari User
LZ 40 REM PART 6 - ODDS AND ENDS
OG 50 REM LISTING 8 - INSERTION SORT
RX 60 STORES=1536
AV 70 COUNT=204:N1=50
XH 80 FOR I=0 TO N1
UL 90 POKE STORES+I,INT(RND(0)*100)
FR 100 NEXT I
TQ 110 FOR I=1 TO 51
ZC 120 READ A:SORT$(I,I)=CHR$(A)
FX 130 NEXT I
JU 140 A=USR(ADR(SORT$))
TR 150 STOP
OA 160 DATA 104,162,0,134,208,160,1,189,0
   ,6,24,217,0,6,240,17,144,15,72,185
AP 170 DATA 0,6,157,0,6,104,153,0,6,169,1
   ,133,208,232,200,228,204,208,224,165
YU 180 DATA 208,201,0,240,5,169,255,24,20
   8,207,96
```

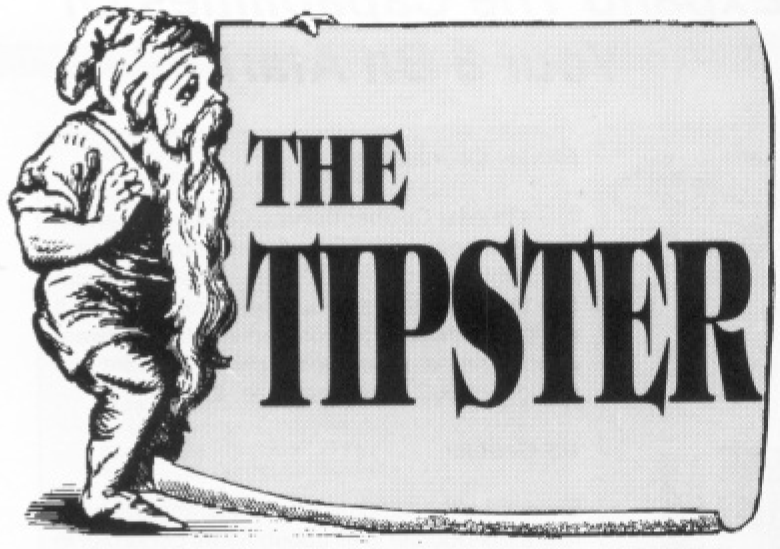
Left* - *Listings 5 and 6 - the Random Shuffle

Centre* - *Listings 7 and 8 - A useful Sort routine

PROGRAMS WANTED

Your programs are wanted as ***BONUS*** programs for our issue disks. What we need are machine code games or utilities that would be too long to print as type-in listings. Programs that have lots of support files to read in or things that fill an entire disk. How about games that were released commercially but are now long gone. If you are the author and have the rights you can earn yourself a few bob more. ***We will pay you up to £100 for BONUS programs*** depending on their complexity and nature. There must be dozens of programs out there waiting to see the light of day, so send them to us.

Make sure your disks are clearly marked BONUS and that the programs are adequately documented. **Send them to PAGE 6, P.O. BOX 54, STAFFORD, ST16**



Welcome to the first Tipster treats of 1990 - a warm and prosperous happy New Year to you all! I trust you're getting over your Christmas vacations and settling down to some serious game-playing.

Included in this edition are the answers to the prayers of dozens of readers ..... a complete solution and map to ***SPELLBOUND*** *and the correct sequence of events (with map) for* ***ACTION BIKER****.*

Firstly, though, I must kick off with the game that has received the most requests for help since The Tipster stepped into these pages - the 'dreaded' ***QUEST FOR ETERNITY!!!*** *The most prolific help has been sent in by Raphael Espime of Peterborough. Raphael has apparently overcome the many bugs in this game and actually completed it! I would dearly love to set his hints/coded answers out in 'Uncle Garry' fashion but I believe that the full solution would ease many minds right now. So here we go!!*

QUEST FOR ETERNITY
THE FULL AND FINAL SOLUTION

LOOK PANEL - ENTER ASP - N - GET SPACESUIT - S - S - E - CONNECT PIPE - PRESS BUTTON - GET SCREWDRIVER - GET KNIFE - W - W - GO BED - GET MANUAL - GET PILLOW - GET MEMORY - GET UP - LEAVE PILLOW - FIT MEMORY - READ MANUAL - LEAVE MANUAL - E - N - N - E - WEAR SPACESUIT - PRESS BUTTON - GO DOOR - REMOVE SPACESUIT - D - E - UNSCREW COVER - GET COVER - GET CIRCUIT - W - U - WEAR SPACESUIT - GO AIRLOCK - PRESS BUTTON - REMOVE SPACESUIT - GO DOOR - W - GET ANALYSER - E - S - S - E - REPAIR DATALINK - LEAVE ANALYSER - W - N - N - E - WEAR SPACESUIT - PRESS BUTTON - GO DOOR - REMOVE SPACESUIT - D - E - FIT DATALINK - LEAVE COVER - SCREW COVER - W - U - U - E - LOOK DISH - PRESS BUTTON - W - D - WEAR SPACESUIT - GO AIRLOCK - PRESS BUTTON - REMOVE SPACESUIT - LEAVE SPACESUIT - GO DOOR - LEAVE SCREWDRIVER - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GO DOOR - E - E - CUT VEGETATION - CUT VEGETATION - LEAVE KNIFE - GET MIRROR - N - GET VESSEL - W - REFLECT LIGHT - LEAVE MIRROR - GET BAR - S - GO AIRLOCK - PRESS BUTTON - LEAVE VESSEL - GO DOOR - S - S - D - OPEN CRATE - LOOK CRATE - GET VISOR - LOOK CRATE - GET BLASTER - LEAVE VISOR - LEAVE BAR - U - N - N - E - PRESS BUTTON - GO DOOR - N - E - N - GO DOOR - W - W - SWITCH BLASTER - BLAST ANDROID - GET ANDROID - S - S - THROW ANDROID - LOOK TOWER - W - GET TRANSMITTER - (We believe this is spelled on the screen as 'Transmiter?!) - N - N - LOOK PARTS - GET MODULE - FIT MODULE - S - S - TRANSMIT - LEAVE TRANSMITTER.

E - N - N - E - E - GET PLATINUM - D - W - LOOK CHEMICALS - GET PHIAL - E - U - S - W - GO AIRLOCK - PRESS BUTTON - GO DOOR - S - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GET VESSEL - GO DOOR - N - N - GET WATER - S - MIX IRRADIUM - S - GO AIRLOCK - PRESS BUTTON - GO DOOR - W - POUR VESSEL - E - PRESS BUTTON - GET SPACESUIT - GO DOOR - N - N - GET WATER - POUR PHIAL - CLIMB COLUMN - LEAVE VESSEL - E - SWITCH BLASTER - BLAST ICE - BLAST ICE - WEAR SPACESUIT - GET BRONZE - THROW BRONZE - REMOVE SPACESUIT - GET BRONZE - W - N - WEAR SPACESUIT - E - N - N - REMOVE SPACESUIT - PRESS GLASS - WEAR SPACESUIT - S - S - W - REMOVE SPACESUIT - LEAVE SPACESUIT - GET GOLD - S - D - S - S - GO AIRLOCK - PRESS BUTTON - GO DOOR - S - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GO DOOR - E - S - LOOK UNDERGROWTH - GET SILVER - S - SWITCH BLASTER - BLAST GORPHON - LEAVE BLASTER - S - S - D - E - S - GET TWINE - N - W - U - N - N - N - N - E - FIT PLATINUM - FIT BRONZE - FIT SILVER - FIT GOLD - D - TIE TWINE - PULL TWINE - S - GET PRISM - N - LEAVE TWINE - U - W - W - GO AIRLOCK - PRESS BUTTON - GO DOOR - S - PRESS YELLOW - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GO DOOR - N - N - CLIMB COLUMN - W - U - FIT PRISM - W - GET QUARTZ - E - D - E - D - S - S - GO AIRLOCK - PRESS BUTTON - GO DOOR - S - PRESS YELLOW - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GO DOOR - N - E - N - GO DOOR - W - W - S - S - D - LEAVE QUARTZ - U - PRESS SWITCH - D - GET QUARTZ - U - N - N - E - E - S - S - S - W - GO AIRLOCK - PRESS BUTTON - GO DOOR - S - PRESS YELLOW - PRESS YELLOW - PRESS GREEN - N - E - PRESS BUTTON - GO DOOR - E - E - D - N - GO BOOTH - FIT QUARTZ ......

to complete your Quest For Eternity!!!

SPELLBOUND

Many readers have sent in tips, maps and solutions on this one. Here is a compilation of all the information received on this game.

Drop the **ADVERT** then pick up the **TELEPORT KEY** and **TELEPORT**. Keep walking **RIGHT** until you pass by **THOR** and reach the little ledge. Jump onto the ledge and walk **LEFT**, past the flowers, until you come to a **GLOWING BOTTLE**. Pick it up and **TELEPORT**. Now pick up the **TELEPORT PAD** you're standing on and walk **LEFT** until you come to a **RED HERRING** - pick it up.

Continue to walk **LEFT** until you come to the **ADVERT** (this is where you started the game) and drop the **TELEPORT PAD**. Carry on walking **LEFT** until you reach the **LIFT**. Call the lift and enter when it arrives. Move the lift to the **SECOND FLOOR** and walk **RIGHT** until you come to **SAMSUN**. Sometimes Samsun is already in the lift. Take the **ELF HORN** from **SAMSUN**, go back to the lift and drop the **RED HERRING**.

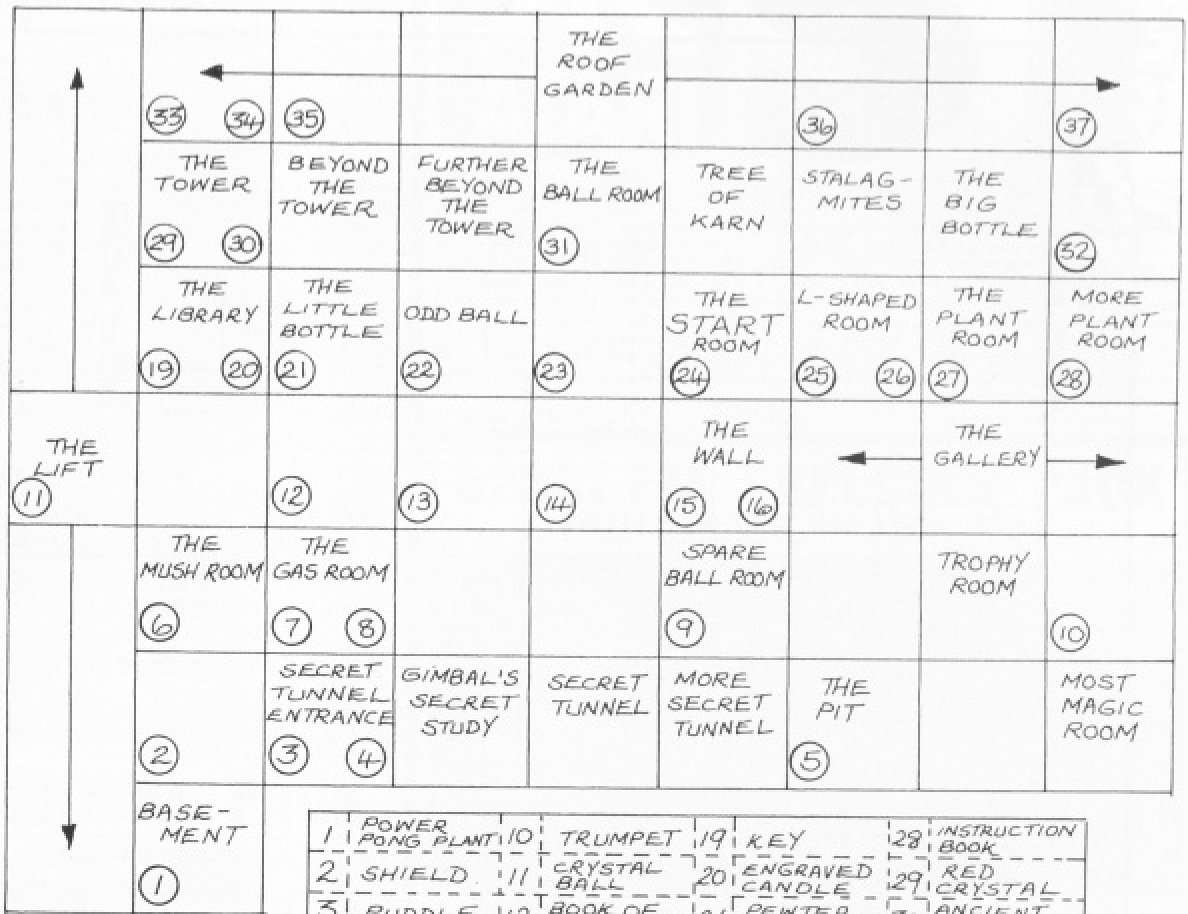
Now move the lift to the **ROOF**. Walk over to **LADY ROSMAR** and pick up the **BOTTLE OF LIQUID**. Carry on walking **RIGHT** until you come to the **WAND OF COMMAND**. Pick it up and **TELEPORT**. You should now be standing next to **FLORIN THE DWARF**, so give him the **BOTTLE OF LIQUID** and **COMMAND** him to **WAKE UP**. Take the **TELEPORT PAD** and walk **LEFT** to the lift. Drop the **TELEPORT** and **BLOW THE ELF HORN** to summon **FLORIN THE DWARF**. When he appears, **COMMAND** him to **SLEEP**. Enter the lift, move to the **SECOND FLOOR** and find **ELRAND** - take the **MIOLNIR** from him. If he's reluctant to release the **MIOLNIR**, **COMMAND** him to be **HAPPY** and try again. Now **TELEPORT** back to the lift.

SUMMON THOR and give him the **MIOLNIR**. **COMMAND** him to **HELP** and he will fix the Control Box. Now **COMMAND** him to **SLEEP**. Enter the lift and move to the **BASEMENT**. Pick up the **RED HERRING**, walk **RIGHT** and drop the **TELEPORT KEY**. Pick up the **POWER PONG PLANT**, **CAST** the **FUMATICUS PROTECTUM SPELL**, drop the **PLANT** and the **RED HERRING**, and pick up the **TELEPORT KEY**.

Enter the lift and move to the **GROUND FLOOR**. Walk **RIGHT** until you find a **LASER**. Pick it up. **SUMMON LADY ROSMAR**, give the **LASER** to her and **COMMAND** her to **HELP**. She should burn a hole through the wall. Stand on the **POOL OF LIQUID** and **CAST** the **AMAROUS PHOTONICUS SPELL**. Go back to the lift and move to the **FIRST FLOOR**. Walk to the extreme **RIGHT** of the floor, pick up the **TRUMPET** and **TELEPORT**. **COMMAND THOR** to **WAKE UP**, then enter the lift and move it to the **FOURTH FLOOR**. Move **RIGHT**, **SUMMON THOR** and **COMMAND** him to **HELP**.

Return to the lift and move to **LEVEL TWO**. Walk all the way to the **RIGHT**. **SUMMON ELRAND**, give him the **TRUMPET** and **COMMAND** him to **HELP**. He will blow the trumpet and make the wall collapse!

The key to solving the game lies in the **CRYSTALS**. One is found on the **FOURTH FLOOR**, another at the far end of of the **ROOF** and the last on the **SECOND FLOOR**. Collect them all - when you have them, take them to the **GROUND FLOOR** and get the **CRYSTAL BALL** from **SAMSUN**. Get the **WHITE GOLD RING** from the **SECOND FLOOR**, then go back to the end of the **GROUND FLOOR** and **SUMMON** a character. When he or she appears, give the **CRYSTAL BALL**. Pick up the **WHITE GOLD RING** and **CAST** the **CRYSTALLIUM SPECTRALIS SPELL**. (You also need the **WAND OF COMMAND**). **THROW ALL THREE CRYSTALS AT GIMBAL TO FREE HIM!!!**



1	POWER PONG PLANT	10	TRUMPET	19	KEY	28	INSTRUCTION BOOK
2	SHIELD	11	CRYSTAL BALL	20	ENGRAVED CANDLE	29	RED CRYSTAL
3	PUDDLE	12	BOOK OF SHADOWS	21	PEWTER TANKARD	30	ANCIENT SCROLL
4	POCKET LASER	13	BRICK	22	MIRROR	31	GREEN CRYSTAL
5	BROKEN TALISMAN	14	EMPTY BOTTLE	23	SAXAPHONE	32	JAVELIN
6	STICKY BUN	15	GOLD BAR	24	TELEPORT KEY	33	FOUR-LEAF CLOVER
7	BOOK OF RUNES	16	CANNON BALL	25	RED HERRING	34	BOTTLE OF LIQUID
8	GOLD GOBLET	17	BLUE CRYSTAL	26	GLOWING BOTTLE	35	RUNESTONE
9	TUBE OF GLUE	18	WHITE GOLD RING	27	TELEPORT PAD	36	PRISM
						37	WAND OF COMMAND



SPELLBOUND

Map courtesy of Paul Dobson

You can't keep The Tipster down - there's more over the page!!

NOTES

1. A **BANSHEE** is trapped inside the **GLOWING BOTTLE**. Once the bottle is dropped, the **BANSHEE** is released. **COMMAND** it to **HELP** for more clues.
2. To please **ORIK the CLERIC** at the end of the **SECOND FLOOR**, give him the **BOOK OF SHADOWS** (it can be found on the same floor). To get to **ORIK**, destroy the wall between you and him - go to the **FOURTH FLOOR**, move **RIGHT** and **SUMMON THOR**. When he appears, **COMMAND** him to **HELP** (he must have the **MIOLNIR**). He will launch a bolt of lightning at the tower which loosens a stone. This must be done so **ELRAND** can destroy the wall which hides **ORIK**.
3. If you pick up the **STICKY BUN** on the **FIRST FLOOR** you won't be able to drop it, thus limiting the amount of objects you can carry.
4. Pick up the **BOOK OF RUNES** along with the **RUNESTONE** and you can read it.
5. If you wish to fix the **BROKEN TALISMAN**, give **FLORIN THE DWARF** the **BAR OF GOLD**, the **BROKEN TALISMAN** and the **TUBE OF GLUE** - then **COMMAND** him to **HELP**.

THE GIVEAWAYS

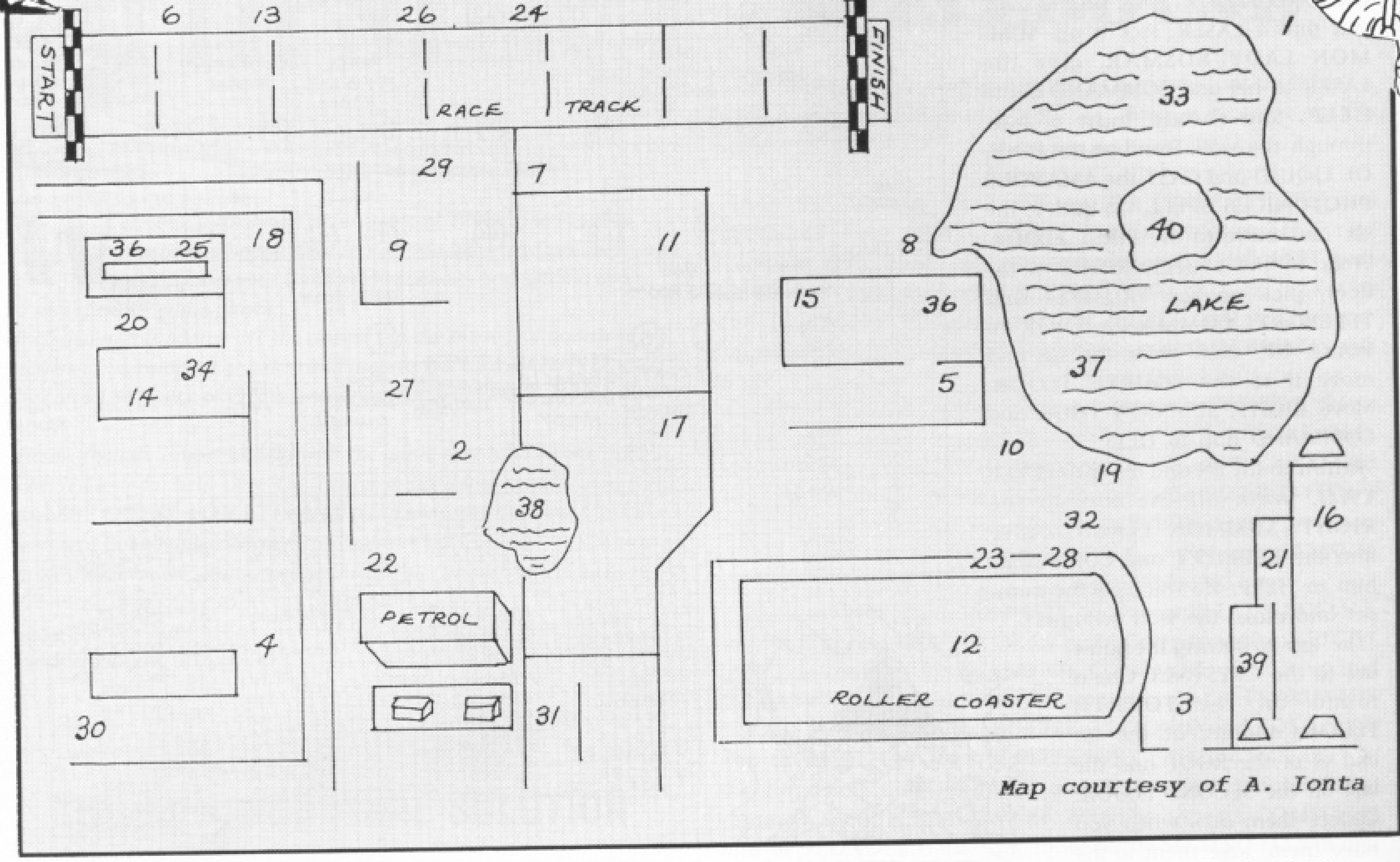
Now here's a problem because that sly old Tipster has put together several readers hints and tips to provide the answers to this issue's problem games, so who do we give that lovely Databank Watch to? Well it has to be Raphael Espime doesn't it - maybe the only person in the world to have battled to the end of Quest For Eternity. Figuring out how to use that Databank Watch ain't gonna be so easy, Raphael!

This time we have on offer ANY TEN BUDGET ATARI GAMES of your choice! If you are the chosen one and can think of ten budget games you don't already have we'll send them to you, provided that they are still available! Get thinking and bury that old Tipster under a ton of mail.





ACTION BIKER



ACTION BIKER

Help on this one comes courtesy of A. Ionta from Glasgow and several other readers. The object is to collect 40 items scattered throughout the town. The items will eventually help you to overcome various obstacles littered over the landscape. You start the game outside the town's petrol station, and you have return here when your bike's fuel starts to run low (although something you pick up later on in the game is an enlarged fuel tank).

Once you start you are given a time limit to collect the first item, which is somewhere in the landscape. Luckily, your bike is able to go off the road, although you have to be careful not to ride into the many fences and walls. Once an item has been collected, the time remaining is converted into points and another time limit is given.

As the game goes on the objects are located in less accessible places and eventually you have to use all your skill to reach the items. For example, you have to use ramps to jump fences to collect an item totally fenced in. The town is quite large and 'wraps around' so it's possible to keep travelling on the same road until your fuel runs out.

The objects to collect (see map) are, in order:

1.CRASH HELMET	11.SUNGLASSES	21.COOLING FINS	31.WATER SKIS
2.RIDING LEATH/S	12.FAIRING	22.INDICATORS	32.FIRE EXTINGUISHER
3.HIGHWAY CODE	13.CAN OF POP	23.MIRROR	33.FOG LAMPS
4.GEARBOX	14.VISOR	24.2-TONE HORN	34.STOPWATCH
5.GLOVES	15.EXHAUST	25.REFLECTORS	35.M/CROSS TYRES
6.HEADLAMP	16.POWER BRAKES	26.ROAD MAP	36.HI-FI
7.PETROL GAUGE	17.SPEEDO	27.STARTER	37.E/IGNITION
8.LARGER TANK	18.BRAKE LAMP	28.LUNCHBOX	38.REV COUNTER
9.TOOLBOX	19.OIL CAN	29.C.B. RADIO	39.WINDSHIELD
10.MUDGUARDS	20.T/CHARGER	30.G/F STRIPES	40.TICKET FOR RACE

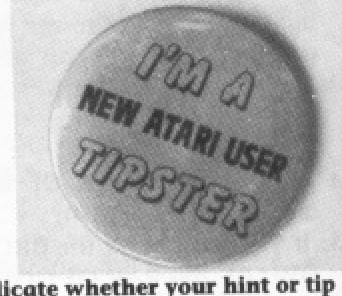
You now go to the Race Track. Move to a position just behind the Start Line and go, on the green light, straight to the other end of the track or you will be disqualified and lose a life. The time taken is added to your final score.

COME ON GUYS AND GALS!

We've only had room this issue for a couple of games but next time, if YOU supply the hints, we'll cover a whole host of Atari games. There has been a good few new releases lately so how about some hints and tips on games such as **COSMIC PIRATE**, **NINJA COMMANDO**, **PRO MOUNTAIN BIKE** and all those new ones which will have hit the shops by the time you read this. Don't forget the oldies either, they are all welcome. Someone somewhere is stuck on the game you have just completed!

Send it all in to
THE TIPSTER, NEW ATARI USER,
P.O. BOX 54, STAFFORD, ST16 1DR

A TIPSTER EXCLUSIVE!



Every reader sending in a NEW hint, tip, cheat or map will receive THE TIPSTER's unique badge, whether the contribution is used or not. The only qualification is that the tip must not have been used before in this column (ripping pages out of old Atari User mags doesn't count either!). Please note that we cannot indicate whether your hint or tip will appear in a future issue - it might, it might not - depends what The Tipster had for dinner when he comes to type up the column.

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All prices correct at the time of going to press. E&OE.

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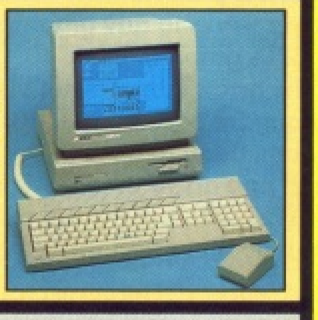
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FOUR CONTROLLERS

There are four separate device drivers. Each program sets up a device called M: (M for Mouse) which is called using the standard CIO procedures, i.e. OPEN, CLOSE etc. Each program is for a different input device but they all return the same values using the same instructions, therefore they are interchangeable every time you boot the computer. Not only that, but they all use only 2K of memory (and only a third of that is program - the rest is player/missile data used to create the pointer on screen).

When you first boot up your computer, you load in the relevant device handler and can then use the following commands (I will assume you are using channel 1 for the M: device):

```
OPEN #1,X,X,"M:"
```

where X is any number or variable - it doesn't make any difference. A pointer will appear on the screen in black with a white edging. This means it is always visible.

```
NOTE #1,X,Y
```

which will enable the user to move the pointer around the main screen area. When the user presses the trigger button on the device they are using, the X and Y variables are loaded with the co-ordinates across and down of where the user left the pointer. These co-ordinates will be equivalent to the nearest plottable point in the current screen mode. For example, in Graphics 7, X will be in the range 0 .. 159 and Y will be in the range 0 .. 95. The text window is not taken into account in split-screen modes, because you can still plot and DRAWTO points under the text window.

```
POINT #1,X,Y
```

which will move the pointer to the co-ordinates given by X and Y, again dependant on the current screen mode.

```
CLOSE #1
```

will make the pointer disappear.

Note the following:

a) The input device should be in ***port 2***. This enables hardened gamers to keep their joystick in port 1.
b) Pressing Break has no effect until a trigger button is pressed.
c) The M: driver works in any graphics mode. In GTIA graphics mode 10, however, the arrow cursor is not visible over the standard background, this is probably something to do with the background and arrow both being the colour of PEEK(704), but it's still rather weird that it doesn't affect any other colour.
d) Changing graphics modes is likely to produce a load of flashing gunk where the pointer should be. Don't worry, just close the device and re-open it.
e) You cannot GET, PUT, PRINT, INPUT, or STATUS from the device. You will get an ERROR 146 (Function not implemented).

Article and routines by Simon Trew

COMPATIBILITY

At present these devices are available

MOUSE.COM ST Mouse driver
TRAKBALL.COM Trakball driver
TABLET.COM Atari Touch Tablet driver
JOYSTICK.COM Standard joystick driver

All devices are 100% compatible with each other. They work with all Basic programs that have enough memory. They also work with the Assembler cartridge and any other language providing the code does not start below address $2800 or relocate at MEMLO (such as a Basic program). It will not work with Turbo Basic which uses this area of memory. For this reason I plan a relocatable version for the future. Assembler users can, of course, change the load address for compatibility with Turbo Basic.

TYPING IT IN

This is the part of any article that most people give up on, so I have tried to make it as painless as possible.

If you haven't got an Assembler, you will have to type in the BASIC DATA statements or buy an Assembler. The first is cheaper, but the second is easier and you will be supporting your local Atari dealer. Not convinced? Oh well, here goes:

USING BASIC

Type in the BASIC program CORE.BAS and SAVE it. Note the REMs pointing to bytes you may alter if you wish. You may leave out all REMs if you wish. Run it and you will have created a file called CORE.OBJ, which is the file common to all devices and contains the data for setting up the player-missiles, M: driver and so on.

Now type in any of the subsidiary driver programs you fancy. The JOYSTICK.BAS one is the shortest at 78 bytes. After saving

```
CS 1 REM ########################################
XC 2 REM #            MULTI-MOUSE             #
SU 3 REM #          by Simon Trew             #
UA 4 REM #            Listing 1               #
QP 5 REM #          CORE.OBJ MAKER            #
SH 6 REM # ---------------------------------- #
LT 7 REM # NEW ATARI USER  February 90 #
CZ 8 REM ########################################
NO 9 REM
JR 100 OPEN #1,8,0,"D:CORE.OBJ"
XY 110 RESTORE :DIM HEX$(32),A$(2)
EX 120 READ HEX$
LR 130 FOR N=1 TO LEN(HEX$)-1 STEP 2
XT 140 A$=HEX$(N,N+1)
AM 150 IF A$="XX" THEN CLOSE #1:END
CR 160 PUT #1,(ASC(A$)-7*(A$>"@")-48)*16+
   (ASC(A$(2))-7*(A$(2)>"@")-48)
ID 170 NEXT N
MS 180 GOTO 120
XO 200 DATA FFFF00201E22260A9208D07D41869
TT 210 DATA 0385F6A90085F5AD0120A900A000
QY 220 DATA 91F5C8D0FBE6F6A5F6C928D0EFA2
SC 225 REM ↓↓ X and Y↓↓ Coords on OPEN
TE 230 DATA 80206620A080207F20A93E8D2F02
BK 235 REM  Colours Fore↓↓      Back↓↓
ZT 240 DATA A9038D1DD0A9008DC002A90F8DC1
NW 250 DATA 02A9010D6F028D6F026000406070
ZD 255 REM  Foregnd arrow: End↓↓↑↑Start
QW 260 DATA 787C78785C0C0E06060040A09088
NV 265 REM  Backgnd arrow: End↓↓↑↑Start
KM 270 DATA 84828484A25211090906E030B005
MJ 275 REM     ↓↓30-Xof ↓↓D0-Xof ↓↓CF-Xof
SP 280 DATA A2304C7520E0D09002A2CF8E1D22
UT 285 REM                    CF-Xof ↑↑
UX 290 DATA 8E00D08E01D060C020B005A0204C
JD 295 REM                20-Yof↑↑ 20-Yof↑
QR 300 DATA 8E20C0DF9002A0DECC1E22F02EAE
CK 310 DATA 1E229848A000A9009D00249D0025
RA 315 REM  DF-Yof↑↑          ↑↑DE-Yof
LE 320 DATA E8C8C00ED0F4A20068A88C1E22BD
ZN 330 DATA 4A20990024BD5820990025C8E8E0
ND 340 DATA 0ED0EE60A50C8DD020A50D8DD120
PB 350 DATA 4CD22020FFFFA9CF850CA920850D
UU 360 DATA A200BD1A03F006E8E8E84CDC20A9
MP 370 DATA 4D9D1A03A9089D1B03A9219D1C03
ZB 380 DATA ADE802C928B00AA9288DE802A900
MO 390 DATA 8DE70260172121212C212C212C21
SB 400 DATA 2F214C1721608A48200120 68AAA0
MW 410 DATA 0160A9008D00D08D01D0A00160A0
ZA 420 DATA 9260BD4203C926F027C925D0F24C
RK 430 DATA BF2102030302010100000000010101
GR 440 DATA 02020000003030403020201010000
PP 450 DATA 0000030400008A48201F2268AAAD
MS 460 DATA 1D2238E93085F5A557C908D011A9
WL 465 REM              ↑↑ 30-Xof
EY 470 DATA 0006F569009D4D03A5F59D4C034C
HA 480 DATA 9F21A9009D4D03A457B93E21C900
FV 490 DATA F00846F538E9014C8E21A5F59D4C
MN 500 DATA 03AD1E22E92085F5A457B94E21C9
OZ 505 REM                 ↑↑ 20-Yof
XQ 510 DATA 00F00846F538E9014CAB21A5F59D
ND 520 DATA 4E03A00160A557C908D0125E4D03
EE 530 DATA 7E4C03BD4C031869308D1D224CE8
AI 535 REM              30-Xof ↑↑
OJ 540 DATA 21A8B93E21C900F0091E4C0338E9
JN 550 DATA 014CDB21BD4C031869308D1D22A4
TI 555 REM                30-Xof ↑↑
VA 560 DATA 57B94E21C900F0091E4E0338E901
SW 570 DATA 4CF621BD4E0318692085F58A48AE
AT 575 REM              20-Yof ↑↑
IA 580 DATA 1D22206620A4F5207F2068AAA001
XJ 590 DATA 600000E702E8020028E002E102C2
VW 600 DATA 20XX                ↑↑↑↑
VH 610 REM  Lo,Hi Of MEMLO↑↑↑↑
MX 620 REM  Increase to reserve more
SV 630 REM  memory for yourself.
IJ 640 REM █ ALL VALUES ARE IN HEX! █
IX 650 REM
```

Listing 1 - CORE.BAS The program to create the basic driver for all devices

and running this, you will have a file called (in this instance) JOYSTICK.OBJ. Go to DOS and copy the CORE.OBJ file to JOYSTICK.COM, then append JOYSTICK-.OBJ to the JOYSTICK.COM file. If you are in any doubt as to how to do this, consult the DOS book. In SpartaDOS, the format would be:

```
COPY CORE.OBJ JOYSTICK.COM
COPY JOYSTICK.OBJ JOYSTICK.COM/A
```

In DOS 2.5 choose option C and type the filenames

```
CORE.OBJ, JOYSTICK.COM
```

then choose C again and type

```
JOYSTICK.OBJ, JOYSTICK.COM/A
```

Now the file JOYSTICK.COM can be loaded from the DOS 2.5 Menu option L or renamed AUTORUN.SYS. DOS 2.5 users should note that a MEM.SAV utility needs to be loaded (such as the RAMDISK) as the driver uses the area of memory overwritten by DUP.SYS. In SpartaDOS, you just need to type JOYSTICK or place it in a .BAT file (or rename it to AUTORUN.SYS).

USING AN ASSEMBLER

If you have an Assembler, you have two options:

a) If you don't intend changing the program much, type in the CORE.ASM program and save it. Assemble it to a disk file called CORE.OBJ. You may then type in the subsidiary driver files, for example JOYSTICK.ASM, and assemble to a disk file called JOYSTICK-.OBJ. You are now ready to combine these files in the same way as for Basic programmers.

b) If you intend changing the program a lot, then the addresses are likely to change and you can't really assemble the programs in two separate bits. Type in the CORE.ASM file as before and save it. Then continue typing in the relevant driver, for example JOYSTICK-.ASM, but omit the equates lines in this file as stated, or you will get error messages with duplicate identifiers, in other words declaring things twice. You may now save this file as JOYSTICK.ASM and assemble it straight to a disk file called JOYSTICK.COM. The time saved in not having to copy you will lose in slower assembly, unless you are really brainy and have a MAC/65, in which case you will lose the time changing the equals signs to EQU and * to ORG and so on. It's just a matter of preference.

Right, now you should have a set of 1 or more drivers which you can use in your programs. If you've come this far then congratulations! You've typed more for this utility than I have!

EXAMPLE PROGRAM

Here is a quickie program which draws lines to any point on the screen you 'click' at.

```
10 GRAPHICS 7
20 COLOR 1
30 OPEN #1,4,0,"M:"
40 NOTE #1,X,Y
50 PLOT X,Y
60 NOTE #1,X,Y
70 DRAWTO X,Y
80 GOTO 60
```

continued overleaf

```
1000 ; ************************
1010 ; *    MOUSE DRIVER V1.3   *
1020 ; *  --------------------  *
1030 ; *     BY SIMON TREW      *
1040 ; *  --------------------  *
1050 ; *      MARCH, 1989       *
1060 ; ************************
1070 ;
1080  .PAGE 0,8,40
1090  .OPT NOEJECT
1100 ;
1110 ;      EQUATES
1120 ;
1130 PMBASE = $D407
1140 DMACTL = $D400    ; PM registers
1150 SDMCTL = $22F
1160 GPRIOR = $26F
1170 GRACTL = $D01D
1180 TEMP1  = $F5      ; Unused P0 Byte
1190 POS0   = $D000
1200 POS1   = $D001
1210 PCOL0  = $2C0     ; player color
1220 PCOL1  = $2C1     ; registers
1230 PMSTORE= $2000    ; Program start
1240 GRMODE = $57
1250 DOSINI = $C
1260 HATABS = $31A
1270 IOCB   = $340
1280 ICAX3  = $34C     ; NOTE and POINT
1290 ICAX4  = $34D     ; variables
1300 ICAX5  = $34E
1310 MEMLO  = $2E7
1320 RUNAD  = $2E0
1330 XOFF   = $00      ; Offsets to calc
1340 YOFF   = $00      ; X and Y from.
1350 ;
1360 ;      SET UP
1370 ;
1380   *=PMSTORE         ; Reserve 2K
1390 NEWLO=*+$800        ; first!
1400   RTS               ; Ward off the
1410 ;                     SpartaDOS
1420 ;                     call to the
1430 ;                     start addr.
1440 SETUP
1450   LDA #PMSTORE/256 ; Tell Antic
1460   STA PMBASE       ; Where PMGs are
1470   CLC              ; DON'T clear
1480   ADC #3           ; first three
1490   STA TEMP1+1      ; pages (our
1500   LDA #PMSTORE&255 ; program) when
1510   STA TEMP1        ; storing the
1520   LDA PMSTORE+1    ; start to clear
1530 LOOP2
1540   LDA #0
1550   LDY #0
1560 LOOP1
1570   STA (TEMP1),Y    ; Clear page
1580   INY
1590   BNE LOOP1
1600   INC TEMP1+1      ; inc page count
1610   LDA TEMP1+1      ; until done
1620   CMP #PMSTORE/256+8
1630   BNE LOOP2
1640   LDX #$80
1650   JSR XCHANGE
1660   LDY #$80
1670   JSR YCHANGE
1680   LDA #$3E          ; Finalise setups
1690   STA SDMCTL       ; Of PMG Values
1700   LDA #$3
1710   STA GRACTL
1720   LDA #$0           ; Black arrow
1730   STA PCOL0
1740   LDA #$F           ; White surround
1750   STA PCOL1
1760   LDA #1
1770   ORA GPRIOR
1780   STA GPRIOR
1790   RTS
1800 ARROW
1810  .BYTE $00       ; ........
1820  .BYTE $40       ; .■......
1830  .BYTE $60       ; .■■.....
1840  .BYTE $70       ; .■■■....
1850  .BYTE $78       ; .■■■■...
1860  .BYTE $7C       ; .■■■■■..
1870  .BYTE $78       ; .■■■■...
1880  .BYTE $78       ; .■■■■...
1890  .BYTE $5C       ; .■.■■■..
1900  .BYTE $0C       ; ....■■..
1910  .BYTE $0E       ; ....■■■.
1920  .BYTE $06       ; .....■■.
1930  .BYTE $06       ; .....■■.
1940  .BYTE $00       ; ........
1950 ENDARR
1960 BACKG
1970  .BYTE $40       ; .■......
1980  .BYTE $A0       ; ■.■.....
1990  .BYTE $90       ; ■..■....
2000  .BYTE $88       ; ■...■...
2010  .BYTE $84       ; ■....■..
2020  .BYTE $82       ; ■.....■.
2030  .BYTE $84       ; ■....■..
2040  .BYTE $84       ; ■....■..
2050  .BYTE $A2       ; ■.■...■.
2060  .BYTE $52       ; .■.■..■.
2070  .BYTE $11       ; ...■...■
2080  .BYTE $09       ; ....■..■
2090  .BYTE $09       ; ....■..■
2100  .BYTE $06       ; .....■■.
2110 ;
2120 ;   MOVE XCOORD TO VALUE IN X
2130 ;
2140 XCHANGE
2150   CPX #$30-XOFF  ; ensure that the
2160   BCS OKLEFT     ; new x-coord is
2170   LDX #$30-XOFF  ; within the main
2180   JMP GOAHED1    ; screen area
2190 OKLEFT
2200   CPX #$D0-XOFF
2210   BCC GOAHED1
2220   LDX #$CF-XOFF
2230 GOAHED1
2240   STX XCOORD     ; store in xcoord
2250   STX POS0       ; and both ANTIC
2260   STX POS1       ; registers (0&1)
2270   RTS
2280 ;
2290 ;   MOVE YCOORD TO VALUE IN Y
2300 ;
2310 YCHANGE
2320   CPY #$20-YOFF  ; ensure that the
2330   BCS OKUP       ; new y-coord is
2340   LDY #$20-YOFF  ; within the main
2350   JMP GOAHED2    ; screen area
2360 OKUP
2370   CPY #$DF-YOFF
2380   BCC GOAHED2
2390   LDY #$DE-YOFF
2400 GOAHED2
2410   CPY YCOORD     ; Any movement?
2420   BEQ DONE       ; No, finished
2430   LDX YCOORD     ; Remove old arrow
2440   TYA            ; using X as index
2450   PHA            ; Push new value
2460   LDY #0         ; so we can use Y
2470   LDA #0         ; as a byte count.
2480 LOOP5
2490   STA PMSTORE+$400,X
2500   STA PMSTORE+$500,X
2510   INX
2520   INY
2530   CPY #ENDARR-ARROW ; erased all?
2540   BNE LOOP5
2550   LDX #0
2560   PLA              ; get new value
2570   TAY              ; and store.
2580   STY YCOORD
2590 LOOP6
2600   LDA ARROW,X
2610   STA PMSTORE+$400,Y ; put in new
2620   LDA BACKG,X       ; arrow
2630   STA PMSTORE+$500,Y
2640   INY
2650   INX
2660   CPX #ENDARR-ARROW
2670   BNE LOOP6
2680 DONE
2690   RTS
2700 ;
2710 ;    CIO HANDLER M:
2720 ;
2730 CIOHND
2740 ;
2750   LDA DOSINI       ; We first have
2760   STA WARMST+1     ; to trap Reset
2770   LDA DOSINI+1     ; and reroute
2780   STA WARMST+2     ; through our
2790   JMP WARM2        ; routine to
2800 WARMST
2810   JSR $FFFF        ; put the M:
2820 WARM2
2830   LDA #WARMST&255 ; handler in the
2840   STA DOSINI       ; table each time
2850   LDA #WARMST/256
2860   STA DOSINI+1
2870   LDX #$0
2880 LOOP
2890   LDA HATABS,X     ; insert new
2900   BEQ INSERT       ; handler M
2910   INX              ; at end of the
2920   INX              ; device table
2930   INX
2940   JMP LOOP
2950 INSERT
2960   LDA #'M          ; M: DRIVER
2970   STA HATABS,X
2980   LDA #NEWTAB&255
2990   STA HATABS+1,X
3000   LDA #NEWTAB/256
3010   STA HATABS+2,X
3020   LDA MEMLO+1      ; If MEMLO has
3030   CMP #NEWLO/256   ; changed to
3040   BCS MEMOK        ; less than end
3050   LDA #NEWLO/256   ; of PM area
3060   STA MEMLO+1      ; then change it
3070   LDA #0           ; back to end of
3080   STA MEMLO        ; PM area.
3090 MEMOK
3100   RTS
3110 NEWTAB
3120  .WORD OPEN-1      ; new table
3130  .WORD CLOSE-1     ; SPECIAL does
3140  .WORD GETBYTE-1   ; most things,
3150  .WORD PUTBYTE-1
3160  .WORD GETSTAT-1
3170  .WORD SPECIAL-1
3180   JMP INIT
3190 ;
3200 INIT
3210   RTS
3220 OPEN
3230   TXA
3240   PHA
3250   JSR SETUP         ; set up arrow
3260   PLA
3270   TAX
3280   LDY #1
3290   RTS
3300 CLOSE
3310   LDA #0            ; make arrow
3320   STA POS0          ; disappear
3330   STA POS1
3340   LDY #1
3350   RTS
3360 GETBYTE
3370 PUTBYTE
3380 GETSTAT
3390   LDY #146          ; Command not
3400   RTS               ; implemented
3410 SPECIAL
```

continued

Listing 2 - The basic driver in Assembly

```
3420  LDA IOCB+2,X      ; Get command
3430  CMP #38           ; NOTE?
3440  BEQ NOTE          ; no.
3450  CMP #37           ; If not POINT
3460  BNE GETSTAT       ; then not valid
3470  JMP POINT
3480 XTAB .BYTE 2,3,3,2,1,1,0,0
3490      .BYTE 0,1,1,1,2,2,0,0
3500 ;
3510 YTAB .BYTE 3,3,4,3,2,2,1,1
3520      .BYTE 0,0,0,0,3,4,0,0
3530 ;
3540 ;   NOTE (GET POSN.) COMMAND
3550 ;
3560 NOTE
3570  TXA
3580  PHA
3590  JSR DEVICE
3600  PLA
3610  TAX
3620  LDA XCOORD        ; convert the PM
3630  SEC               ; coordinates to
3640  SBC #$30-XOFF     ; gr. mode ones
3650  STA TEMP1         ; (now 0-159)
3660  LDA GRMODE
3670  CMP #$0           ; mode 8 is spec
3680  BNE NOT8          ; -ial (no LSRs)
3690  LDA #$0
3700  ASL TEMP1
3710  ADC #$0
3720  STA ICAX4,X     ; high x byte
3730  LDA TEMP1
3740  STA ICAX3,X     ; low x byte
3750  JMP YAXIS
3760 NOT8
3770  LDA #$0
3780  STA ICAX4,X
3790  LDY GRMODE
3800  LDA XTAB,Y        ; A Now holds
3810 LOOP9
3820  CMP #0            ; times we must
3830  BEQ OK99          ; LSR the X axis
3840  LSR TEMP1
3850  SEC
3860  SBC #1
3870  JMP LOOP9
3880 OK99
3890  LDA TEMP1
3900  STA ICAX3,X
3910 YAXIS
3920  LDA YCOORD
3930  SBC #$20-YOFF
3940  STA TEMP1
3950  LDY GRMODE
3960  LDA YTAB,Y        ; A now holds
3970 LOOP10
3980  CMP #0            ; times we must
3990  BEQ DONE2         ; LSR the Y axis
4000  LSR TEMP1
4010  SEC
4020  SBC #1
4030  JMP LOOP10
4040 DONE2
4050  LDA TEMP1
4060  STA ICAX5,X
4070  LDY #$1
4080  RTS
4090 ;
4100 ;   POINT (PUT POSN.) COMMAND
4110 ;
4120 POINT
4130  LDA GRMODE
4140  CMP #$8
4150  BNE NOMOD8
4160  LSR ICAX4,X     ; mode 8: divide
4170  ROR ICAX3,X     ; X by 2 first.
4180  LDA ICAX3,X
4190  CLC
4200  ADC #$30-XOFF   ; add on as nec.
4210  STA XCOORD
4220  JMP YAXIS2
4230 NOMOD8
4240  TAY               ; Y holds GRMode
4250  LDA XTAB,Y        ; A holds no. of
4260 LOOP11
4270  CMP #0            ; times we must
4280  BEQ YAXIS2        ; ASL the X co-
4290  ASL ICAX3,X       ; ordinate.
4300  SEC
4310  SBC #1
4320  JMP LOOP11        ; now we add on
4330 YAXIS2
4340  LDA ICAX3,X       ; as necessary.
4350  CLC
4360  ADC #$30-XOFF
4370  STA XCOORD
4380  LDY GRMODE
4390  LDA YTAB,Y        ; A holds no. of
4400 LOOP12
4410  CMP #$0           ; times we must
4420  BEQ DONE3         ; ASL the Y-AXIS
4430  ASL ICAX5,X       ; coordinate
4440  SEC
4450  SBC #$1
4460  JMP LOOP12
4470 DONE3
4480  LDA ICAX5,X       ; add on as nec.
4490  CLC
4500  ADC #$20-YOFF
4510  STA TEMP1
4520  TXA               ; finally save
4530  PHA               ; reg's and jump
4540  LDX XCOORD        ; to the move
4550  JSR XCHANGE       ; subroutines.
4560  LDY TEMP1
4570  JSR YCHANGE
4580  PLA
4590  TAX
4600  LDY #$1
4610  RTS
4620 ;
4630 ;   DOS INITIALISATION
4640 ;
4650 XCOORD .BYTE 0
4660 YCOORD .BYTE 0
4670 DEVICE=*
4680  *=MEMLO
4690  .WORD NEWLO
4700  *=RUNAD
4710  .WORD CIOHND
4720  *=DEVICE
```

Exciting stuff, huh? Try changing the graphics mode in line 10, and it should still work. Note that the pointer always appears in front of the graphics, except in Graphics modes 0 and 8 (and probably Antic mode 3) where the pointer does not appear in front of the graphics or text but takes on the luminance of the text in the player's colour. Try it yourself if you don't understand that. You can normally get around any problems by using a large difference in luminance between foreground and background. You will get a sort of filter effect around the arrow which can actually be quite useful.

HOW IT WORKS

If you're one of those people who'd rather not know, then skip this section. For the rest of us, I shall attempt to explain how I did things and why.

THE CORE.ASM PROGRAM:

The first instruction in this code is a RTS, which might seem as if I'm going about things the wrong way, but as you may have guessed I use SpartaDOS and one of the things it does is jumps to the first byte of the code as well as jumping to the run address. So the RTS just avoids any nasties happening. For non-Sparta users, this has no effect.

The first module from **lines 1360 to 1800** sets up the display and clear the Player/Missile ("P/M") area on an OPEN command, and as this is the most basic routine I put it first.

The next few lines **1800 to 2100** contain the data for the arrow. The first set of bytes is for the foreground of the arrow and the second set is for the border. Having a two-colour arrow means it never becomes invisible.

Lines 2140 to 2270 are called when any part of the program wants to change the X co-ordinate of the arrow. POINT does this and so does each driver when you move whichever device you are using. The X co-ordinate contained in the X register is checked to make sure it is on the main screen area. XOFF is a constant declared at the top of the program and is used to determine which point across the stripe to take as 0, for example if you had a cros-shair cursor the point to calculate from would be somewhere in the middle of the stripe, i.e. 3 or 4. More of this later.

Lines 2280 to 2700 do the same for the Y axis. As many people are aware, a player/missile does not have a y co-ordinate, it extends right from the top to the bottom of the screen in one continuous stripe. Therefore to plot in the Y axis we move the arrow up and down in that stripe. First we erase the arrow from players 0 and 1 and replace them in their proper positions. When calling this and the XCHANGE routine, the co-ordinates are not the standard graphics mode co-ordinates but the player/missile co-ordinate system.

Lines 2700 to 3210 are called whenever a Reset occurs or when the program is first loaded. The Reset handler (DOSVEC) is re-routed through the routine and then the M: table is placed in the CIO handler table (HATABS). Then MEMLO is checked and if it is found to be less than the end of the program, it is replaced with the address of the end of the program. If MEMLO is greater than the address of the end of the program it is left be, as there may be other utilities further up in memory than this driver, for example a keyboard buffer driver.

Lines 3220 to 3290 handle an OPEN command, most of which actually occurs in SETUP. Note that the X register is saved

continued overleaf

```
CS 1 REM ##################################################
XC 2 REM #            MULTI-MOUSE                  #
SU 3 REM #          by Simon Trew                  #
VA 4 REM #             Listing 2                   #
WI 5 REM #         MOUSE.OBJ MAKER                 #
SH 6 REM # -------------------------------- #
LT 7 REM # NEW ATARI USER  February 90 #
CZ 8 REM ##################################################
NO 9 REM
DM 100 OPEN #1,8,0,"D:MOUSE.OBJ"
KY 110 RESTORE :DIM HEX$(32),A$(2)
EX 120 READ HEX$
LR 130 FOR N=1 TO LEN(HEX$)-1 STEP 2
XT 140 A$=HEX$(N,N+1)
AM 150 IF A$="XX" THEN CLOSE #1:END
CR 160 PUT #1,(ASC(A$)-7*(A$>"@")-48)*16+
   (ASC(A$(2))-7*(A$(2)>"@")-48)
ID 170 NEXT N
MS 180 GOTO 120
NA 200 DATA FFFF1F22AD22AD00D34A4A4A4A85
GM 210 DATA F529038DA622A5F5290C4A4A8DA7
OP 220 DATA 22AD00D34A4A4A4A85F529038DA8
BT 230 DATA 22A5F5290C4A4A8DA922AEA622EC
FY 240 DATA A822F019BDAA22CDA822D00AAE1D
CE 250 DATA 22CA2066204C6E22AE1D22E82066
OF 260 DATA 20ACA722CCA922F01BB9AA22CDA9
HO 270 DATA 22D00BAC1E22888820 7F204C9122
MO 280 DATA AC1E22C8C8207F20ADA8228DA622
SK 290 DATA ADA9228DA722AD8502D001604C36
CT 300 DATA 2200000000001030002XX
```

Listings 3 and 4
The Mouse Driver
Above in Basic
Right in Assembler

```
5000 ;
5010 ;  MOUSE DRIVER 1.2
5020 ;
5030 ;
5040 ;   EQUATES
5050 ;
5060 STICK1 = $D300 ; Need Speed!
5070 STRIG1 = 645
5080 ;
5090 ; Leave the following 6 lines
5100 ; of equates out if you intend to
5110 ; append this at the source stage.
5120 ;
5130 XCHANGE= $2066
5140 YCHANGE= $207F
5150 XCOORD = $221D
5160 YCOORD = XCOORD+1
5170 TEMP1  = $F5
5180  *=YCOORD+1
5190 ;
5200 ; The rest of the code BOTH
5210 ; methods use, so TYPE IT IN!!!
5220 ;
5230 PROGRAM
5240  LDA STICK1 ; Get our initial
5250  LSR A      ; value to compare
5260  LSR A      ; with
5270  LSR A
5280  LSR A
5290  STA TEMP1  ; split into X and Y
5300  AND #$03   ; (we only use bits 0
5310  STA OLDX   ; and 1 for each)
5320  LDA TEMP1  ; (See below)
5330  AND #$0C
5340  LSR A
5350  LSR A
5360  STA OLDY
5370 MAINLOOP
5380  LDA STICK1 ; First separate the
5390  LSR A      ; new input into its
5400  LSR A      ; X part (bits 0 and
5410  LSR A      ; 1)...
5420  LSR A
5430  STA TEMP1
5440  AND #$03
5450  STA NEWX
5460  LDA TEMP1  ; ...and its y part
5470  AND #$0C   ; (bits 2 and 3)
5480  LSR A
5490  LSR A
5500  STA NEWY
5510 ;
5520  LDX OLDX   ; Any difference?
5530  CPX NEWX
5540  BEQ TRYY
5550  LDA TABLE1,X
5560  CMP NEWX   ; work out left or
5570  BNE RIGHT  ; right
5580  LDX XCOORD
5590  DEX
5600  JSR XCHANGE
5610  JMP TRYY
5620 RIGHT
5630  LDX XCOORD
5640  INX
5650  JSR XCHANGE
5660 TRYY
5670  LDY OLDY   ; Any difference?
5680  CPY NEWY
5690  BEQ TRIG
5700  LDA TABLE1,Y
5710  CMP NEWY   ; work out up or down
5720  BNE DOWN
5730  LDY YCOORD
5740  DEY
5750  DEY
5760  JSR YCHANGE
5770  JMP TRIG
5780 DOWN
5790  LDY YCOORD
5800  INY
5810  INY
5820  JSR YCHANGE
5830 TRIG
5840  LDA NEWX   ; change values ready
5850  STA OLDX   ; for next time
5860  LDA NEWY
5870  STA OLDY
5880  LDA STRIG1 ; Check fire button
5890  BNE OK1
5900  RTS        ; at least.
5910 OK1
5920  JMP MAINLOOP
5930 ;
5940 OLDX .BYTE 0
5950 OLDY .BYTE 0
5960 NEWX .BYTE 0
5970 NEWY .BYTE 0
5980 TABLE1 .BYTE 1,3,0,2
```

as this is the index as to what IOCB is being used.

Lines 3300 to 3350 handle the CLOSE procedure. The players are taken off the visible screen. This is the ONLY time their positions are changed external to XCHANGE and YCHANGE and this is only because the co-ordinates don't matter after that.

Lines 3360 to 3400 handle all the non-implemented functions.

Lines 3410 to 3470 handle a SPECIAL command and determine if it is a NOTE or POINT in which case the relevant routine is called, or some other function, in which case the 'not-implemented' routine is called.

Lines 3480 to 3520 contain a table for each axis which is how many times a player/missile co-ordinate must be divided to be in the correct scale for a screen co-ordinate. The first number is for Graphics 0, the second Graphics 1 and so on.

Lines 3530 to 4090 handle a NOTE. The individual driver is called and then the co-ordinates are manipulated by subtraction and division to make them into graphics screen co-ordinates. The division is accomplished by a rotate right which divides by 2, this being repeated the number of times specified in the tables.

Lines 4090 to 4610 handle the POINT command which is virtually the reverse of the NOTE command.

The rest of the program handles DOS code for MEMLO, and the run address of the code, plus the two bytes used to store the arrow's co-ordinates.

THE DEVICES

Phew! Instead of going through each driver, I will give a brief outline of how each device returns values. See also the diagrams which might make it a bit clearer.

JOYSTICK: This returns values in a 4-bit form, one bit corresponding each to up, down, left and right. All that is necessary is to check for each bit and move as appropriate.

TRAKBALL: Again this returns a 4-bit value but in a different form. Two of the bits indicate whether the ball is travelling up or down, left or right by setting or resetting the bit as appropriate. The other two bits CHANGE when vertical or horizontal movement is encountered. Therefore we must store the old value and check it with the new one. We must do this at least twice, else the user will never get a chance to move if he keeps is finger on the fire button.

ST MOUSE: A couple of other drivers are available for an ST mouse but none of them have compatibility with any other devices you use, so your non-mousing friends can't use your wonderful programs. Anyway, this driver is easier to customise because you have the source code!

A mouse works in a similar fashion to a trakball, for each axis there are two bits. These bits change as the ball is moved along that axis in the following way:

	OR	
00		00
01		10
11		11
10		01
00		00
01		10

etc. depending on which way you are going.

```
CS 1 REM ##########################################
XC 2 REM #            MULTI-MOUSE                 #
SU 3 REM #           by Simon Trew                #
WA 4 REM #             Listing 3                  #
PF 5 REM #        TRAKBALL.OBJ MAKER              #
SH 6 REM # -------------------------------------- #
LT 7 REM # NEW ATARI USER  February 90            #
CZ 8 REM ##########################################
NO 9 REM
KK 20 REM *  TRAKBALL.OBJ MAKER  *
CL 100 OPEN #1,8,0,"D:TRAKBALL.OBJ"
KY 110 RESTORE :DIM HEX$(32),A$(2)
EX 120 READ HEX$
LR 130 FOR N=1 TO LEN(HEX$)-1 STEP 2
XT 140 A$=HEX$(N,N+1)
AM 150 IF A$="XX" THEN CLOSE #1:END
CR 160 PUT #1,(ASC(A$)-7*(A$>"@")-48)*16+
   (ASC(A$(2))-7*(A$(2)>"@")-48)
ID 170 NEXT N
MS 180 GOTO 120
NN 200 DATA FFFF1F220822AD00D34A4A4A4A8D
PH 210 DATA 8022AD00D34A4A4A4A85F54D0022
KV 220 DATA 2908F019A5F52904F008AC1E22C8
DH 230 DATA C8207F204C5222AC1E228888207F
YQ 240 DATA 20A5F54D0022290 2F017A5F52901
SS 250 DATA F00AAE1D22E820662 04C7222AE1D
DG 260 DATA 22CA206620A5F58D0022AD8502D0
WJ 270 DATA 01604C292200XX
```

Listings 5 and 6
The Trackball Driver
Above in Basic
Right in Assembler

```
5000 ;
5010 ;  TRAKBALL DRIVER 1.0
5020 ;
5030 ;
5040 ;  EQUATES
5050 ;
5060 STICK1 = $D300 ; Need speed!
5070 STRIG1 = 645
5080 ;
5090 ; Leave the following 6 lines
5100 ; of equates out if you intend to
5110 ; append this at the source stage.
5120 ;
5130 XCHANGE= $2066
5140 YCHANGE= $207F
5150 XCOORD = $221D
5160 YCOORD = XCOORD+1
5170 TEMP1  = $F5
5180  *=YCOORD+1
5190 ;
5200 ;
5210 ; The rest of the code BOTH
5220 ; methods use, so TYPE IT IN!!!
5230 PROGRAM
5240  LDA STICK1  ; looped >0 times.
5250  LSR A       ; Store the current
5260  LSR A       ; value so we don't
5270  LSR A       ; go whizzing off in
5280  LSR A       ; any direction
5290  STA OLDVAL
5300 MAINLOOP
5310  LDA STICK1  ; get new value
5320  LSR A
5330  LSR A
5340  LSR A
5350  LSR A
5360  STA TEMP1
5370  EOR OLDVAL  ; If no ups or downs
5380  AND #$8     ; (bit 3 no change)
5390  BEQ HORIZ   ; go try horizontals
5400  LDA TEMP1
5410  AND #$04
5420  BEQ UP
5430  LDY YCOORD  ; change: down
5440  INY
5450  INY
5460  JSR YCHANGE
5470  JMP HORIZ
5480 UP
5490  LDY YCOORD  ; change: up
5500  DEY
5510  DEY
5520  JSR YCHANGE
5530 HORIZ
5540  LDA TEMP1
5550  EOR OLDVAL
5560  AND #$02    ; No change left or
5570  BEQ TRIG    ; right (bit 1)
5580  LDA TEMP1   ; go check trigger
5590  AND #$01
5600  BEQ LEFT
5610  LDX XCOORD  ; change: right
5620  INX
5630  JSR XCHANGE
5640  JMP TRIG
5650 LEFT
5660  LDX XCOORD  ; change: left
5670  DEX
5680  JSR XCHANGE
5690 TRIG
5700  LDA TEMP1   ; Save this value
5710  STA OLDVAL  ; To check next time
5720  LDA STRIG1
5730  BNE OKS
5740  RTS         ; more times.
5750 OKS
5760  JMP MAINLOOP
5770 ;
5780 OLDVAL .BYTE 0
```

Only one bit changes at a time and this can be difficult to process because the order is not true binary. This is called a *grey code* (ooh!) and avoids an error when both bits should change but don't quite make it together. To read this sequence, we have a table of 4 elements, which is the correct sequence for one direction.

TOUCH TABLET: This is an analogue device and returns a value between 0 and 228 for each axis, although I only use 160 (x) and 192 (y) values and cut off the others which means your stylus or finger is not right up against the tablet edge. The x axis runs 0 to 228 left to right and the y axis runs 228 to 0 top to bottom, so this value must be inverted. The three fire buttons each return a bit in STICK(1) (for port 2) but if you don't want to check which button is pressed you can just see if the value is 15 (none pressed) or not 15 (any pressed).

CUSTOMISING THE PROGRAM

One of the main reasons I wrote this program is because I found it so cryptic going through a mouse device driver trying to find out how it worked. I started from scratch, I didn't even know how a trakball or mouse worked. There's not much point in having a program that only does what one person wants it to do so I have tried to make it as easy as possible to change it. Remember, if you make the code any longer you will not be able to assemble the individual drivers separately as the equates will be wrong. Many of the changes you can make in the BASIC listing - those that don't change the length of the code. See the REM statements in the Basic CORE.BAS program.

CHANGING THE SHAPE OF THE ARROW: Change the bytes between ARROW and ENDARR. If you want you can have less or more bytes but make sure there is the same number of bytes after BACKG. If your new shape does not have its reference position at the top left you will have to change XOFF and YOFF, or the indicated numbers if using Basic. In Basic you must keep the arrow to the same number of bytes, thus if your shape is only 5 bytes high pad out the rest with 0's. See the diagram for more details.

CHANGING THE ADDRESS OF THE PROGRAM: This can be done in the Assembler code by changing PMSTORE in line 1230 of the program. The program takes up 2K from addresses PMSTORE to PMSTORE+$7FF and MEMLO is set at PMSTORE+$800. You may make MEMLO higher in either Basic or Assembler if you wish, thus protecting memory for your own use. Eventually I shall produce a relocatable version.

ADDING A NEW DEVICE HANDLER: If you have a device other than those I have written drivers for, say a light pen or a keyboard (I didn't include this as I can't imagine anyone without a joystick) you may want to write your own. Here's how to go about it:

a) You may use the XCOORD and YCOORD variables to find out the position of the arrow.
b) To set the position of the arrow, load X with the P/M co-ordinate and call XCHANGE for the X axis, or load Y and call YCHANGE for the Y-AXIS. You may move the arrow to any point and need not check that the co-ordinates are within the main screen area.
c) You may use the variable TEMP1 ($F5) if you need zero-page storage, but don't expect it to keep its value between subroutines.
d) Your routine should end in RTS when the user has signified end of input (e.g. pressed a trigger or key).
e) The last byte of your code should not extend past PMSTORE+$2FF. You have about 220 bytes to contain your driver.

continued overleaf

```
CS 1 REM ##########################################
XC 2 REM #            MULTI-MOUSE                 #
SU 3 REM #           by Simon Trew                #
XA 4 REM #             Listing 4                  #
EU 5 REM #         TABLET.OBJ MAKER               #
SH 6 REM # ---------------------------------------#
LT 7 REM # NEW ATARI USER  February 90            #
CZ 8 REM ##########################################
NO 9 REM
PO 100 OPEN #1,8,0,"D:TABLET.OBJ"
XY 110 RESTORE :DIM HEX$(32),A$(2)
EX 120 READ HEX$
LR 130 FOR N=1 TO LEN(HEX$)-1 STEP 2
XT 140 A$=HEX$(N,N+1)
AM 150 IF A$="XX" THEN CLOSE #1:END
CR 160 PUT #1,(ASC(A$)-7*(A$>"@")-48)*16+
   (ASC(A$(2))-7*(A$(2)>"@")-48)
ID 170 NEXT N
MS 180 GOTO 120
EW 200 DATA FFFF1F22AC22AD7902C90FF00160
QS 210 DATA A9008DA9228DAA22A00488018ADA9
UC 220 DATA 226D72028DA922ADAA2269008DAA
OH 230 DATA 2220A322C000D0E6A002184EAA22
BN 240 DATA 6EA92288D0F6ADA9228DAB2248A0
JS 250 DATA 04A9008DA9228DAA228818AD7302
WU 260 DATA 49FFE90F6DA9228DA922ADAA2269
OU 270 DATA 008DAA2220A322C000D0E2A00218
RE 280 DATA 4EAA226EA92288D0F6ACA9228CAC
VY 290 DATA 22207F2068AA2066204C1F22A2FF
NA 300 DATA CAD0FD6000000000XX
```

```
5000 ;
5010 ;  TABLET DRIVER 1.0
5020 ;
5030 ;
5040 ;  EQUATES
5050 ;
5060 PADDL2 = 626
5070 PADDL3 = 627
5080 STICK1 = 633
5090 ;
5100 ; Leave the following 5 lines
5110 ; of equates out if you intend to
5120 ; append this at the source stage.
5130 ;
5140 XCHANGE= $2066
5150 YCHANGE= $207F
5160 XCOORD = $221D
5170 YCOORD = XCOORD+1
5180  *=YCOORD+1
5190 ;
5200 ; The rest of the code BOTH
5210 ; methods use, so TYPE IT IN!!!
5220 ;
5230 ;
5240 PROGRAM
5250 MAINLOOP
5260  LDA STICK1 ; Check for trigger
5270  CMP #15    ; (all three register
5280  BEQ NOTRIG ; in STICK1)
5290  RTS
5300 NOTRIG
5310  LDA #0
5320  STA PADVAL   ; Clear paddle
5330  STA PADVAL+1 ; averages
5340  LDY #4
5350 LOOP9
5360  DEY            ;        X AXIS
5370  CLC
5380  LDA PADVAL     ; Get 4 readings
5390  ADC PADDL2
5400  STA PADVAL
5410  LDA PADVAL+1
5420  ADC #0         ; add to the average
5430  STA PADVAL+1
5440  JSR WAIT
5450  CPY #0
5460  BNE LOOP9
5470  LDY #2         ; (LSR TWICE)
5480 LOOP11
5490  CLC            ; average by div-
5500  LSR PADVAL+1   ; iding by 4
5510  ROR PADVAL
5520  DEY
5530  BNE LOOP11
5540  LDA PADVAL
5550  STA OLDX
5560  PHA            ; Save X Value
5570  LDY #$4        ; Now read Y-axis
5580  LDA #0
5590  STA PADVAL
5600  STA PADVAL+1
5610 LOOP8
5620  DEY
5630  CLC
5640  LDA PADDL3
5650  EOR #255
5660  SBC #15
5670  ADC PADVAL
5680  STA PADVAL
5690  LDA PADVAL+1
5700  ADC #0.
5710  STA PADVAL+1
5720  JSR WAIT
5730  CPY #0
5740  BNE LOOP8
5750  LDY #2
5760 LOOP12
5770  CLC
5780  LSR PADVAL+1
5790  ROR PADVAL
5800  DEY
5810  BNE LOOP12
5820  LDY PADVAL
5830  STY OLDY
5840  JSR YCHANGE
5850  PLA
5860  TAX
5870  JSR XCHANGE
5880  JMP MAINLOOP
5890 ;
5900 ;  WAIT FOR PADDLES
5910 ;
5920 WAIT
5930  LDX #$FF
5940 LOOP10
5950  DEX
5960  BNE LOOP10
5970  RTS
5980 ;
5990 PADVAL .WORD 0
6000 OLDX .BYTE 0
6010 OLDY .BYTE 0
```

Listings 7 and 8
The Touch Tablet Driver
Above in Basic
Right in Assembler

Multi-Mouse

Mine range from 78 to about 170 bytes. If you have to use more space, change the 3 in line 1480 to 4 and you have an extra 256 bytes, but using any of the missiles will corrupt your driver.

CHANGING THE COLOURS: You may change the colours whilst using the driver by POKEing to 704 and 705. To change the default colours, change the values on lines 1720 and 1740 (Assembler) or those indicated in the Basic code. The formula is as usual:

16*Colour+Brightness

ADDING ADDITIONAL CIO FUNCTIONS: To add GETBYTE PUTBYTE or GETSTATus functions, write your own code and erase the label from lines 3360 to 3380. You may find which IOCB to use in the X register ($00=IOCB0, $10=IOCB1, $20=IOCB2 etc), which command to use in address IOCB+2,X and you should not corrupt the X register. The Y register should hold the status of the command on exit: 1=success, 128=break abort, 146= command not implemented and so on. If you want commands that are specific to each driver, e.g. checking fire buttons, then separate assembly of the code is not possible without indirect jumps through temporary locations (ugh!) and because of this I have not implemented these, admittedly simple, functions.

If you want any help on writing a new driver or modifying mine, feel free to write. Or send a disk for all source and object code. I will be glad to supply a bootstrapping tape plus the four drivers on receipt of a tape. Please send an SAE though.

Simon Trew
322 York Road
Stevenage
Herts
SG1 4HW

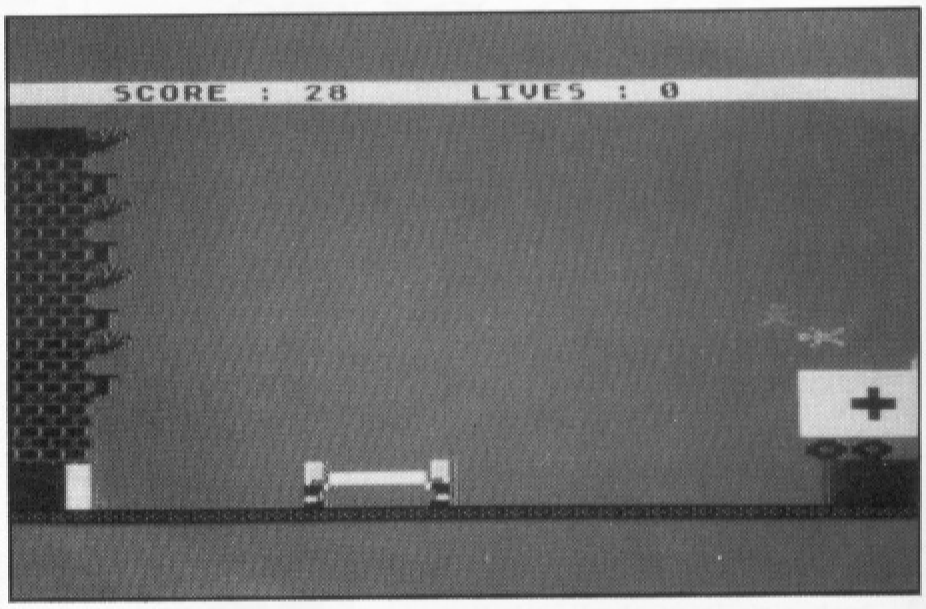
Right - the Joystick driver

Listings 9 and 10 The Joystick Driver
Below in Basic
Right in Assembler

```
CS 1 REM ##################################################
KC 2 REM #             MULTI-MOUSE              #
SU 3 REM #            by Simon Trew             #
YA 4 REM #              Listing 5               #
LI 5 REM #         JOYSTICK.OBJ MAKER           #
SH 6 REM # ------------------------------------ #
LT 7 REM # NEW ATARI USER   February 90 #
CZ 8 REM ##################################################
NO 9 REM
HZ 100 OPEN #1,8,0,"D:JOYSTICK.OBJ"
KY 110 RESTORE :DIM HEX$(32),A$(2)
EK 120 READ HEX$
LR 130 FOR N=1 TO LEN(HEX$)-1 STEP 2
XT 140 A$=HEX$(N,N+1)
AM 150 IF A$="XX" THEN CLOSE #1:END
CR 160 PUT #1,(ASC(A$)-7*(A$>"@")-48)*16+
   (ASC(A$(2))-7*(A$(2)>"@")-48)
ID 170 NEXT N
MS 180 GOTO 120
IT 200 DATA FFFF1F226622AD790205F52901D0
VL 210 DATA 08AC1E228888207F20A5F52902D0
OH 220 DATA 08AC1E22C8C8207F20A5F52904D0
OK 230 DATA 07AE1D22CA206620A5F52908D007
CU 240 DATA AE1D22E8206620A514C514F0FCAD
AV 250 DATA 8502D001604C1F22XX
```

```
1000 ;
1010 ; JOYSTICK DRIVER 1.0
1020 ;
1030 ;
1040 ; EQUATES
1050 ;
1060 STICK1 = 633
1070 STRIG1 = 645
1080 ;
1090 ; Leave the following 6 lines
1100 ; of equates out if you intend to
1110 ; append this at the source stage.
1120 ;
1130 XCHANGE= $2063
1140 YCHANGE= $207C
1150 XCOORD = $221A
1160 YCOORD = XCOORD+1
1170 TEMP1  = $F5
1180  *=YCOORD+1
1190 ;
1200 ; The rest of the code BOTH
1210 ; methods use, so TYPE IT IN!!!
1220 ;
1230 PROGRAM
1240 MAINLOOP
1250  LDA STICK1   ; Get stick value
1260  STA TEMP1    ; save in Temp1
1270  AND #$01     ; check bit 1 (up)
1280  BNE OK1
1290  LDY YCOORD
1300  DEY
1310  DEY
1320  JSR YCHANGE
1330 OK1
1340  LDA TEMP1
1350  AND #$02     ; check bit 2 (down)
1360  BNE OK2
1370  LDY YCOORD
1380  INY
1390  INY
1400  JSR YCHANGE
1410 OK2
1420  LDA TEMP1
1430  AND #$04     ; check bit 3 (left)
1440  BNE OK3
1450  LDX XCOORD
1460  DEX
1470  JSR XCHANGE
1480 OK3
1490  LDA TEMP1
1500  AND #$08     ; and bit 4 (right)
1510  BNE OK4
1520  LDX XCOORD
1530  INX
1540  JSR XCHANGE
1550 OK4
1560  LDA 20       ; Wait for a jiffy...
1570 LOOP9
1580  CMP 20
1590  BEQ LOOP9
1600  LDA STRIG1   ; check button
1610  BNE OK5
1620  RTS
1630 OK5
1640  JMP MAINLOOP
```

TO THE RESCUE



by Wouter Schul

Grab your helmet, slide down the pole and into the big red engine. There's a fire!

A big apartment block in town is burning and it's you job to rescue the occupants as they jump from various floors. You must operate the rescue blanket held by two brave fireman and catch people as they fall in order to bounce them into the waiting ambulance. You have to be quick and must be careful that falling sparks do not damage the blanket. If this happens you must go over to the ambulance to collect a new one.

If you rescue enough people, the owner of the building might want to give you a medal but you'll have to be quick to collect it, as the fire is still raging!

SCORING

Each person caught
2 points

Man in Ambulance
10 points

Collecting medal
extra life

The game ends when you have dropped too many people

TO THE RESCUE

```
CS 1 REM ##################################
JV 2 REM #        TO THE RESCUE          #
BI 4 REM #          Wouter Schul          #
WD 5 REM #       Marken,  Holland         #
SH 6 REM # ------------------------------ #
LT 7 REM # NEW ATARI USER  February 90 #
CZ 8 REM ##################################
AY 10 REM
AL 100 ? "ʞPlease be patient while I init
   ialise":GOSUB 1000:REM CH-SET
MS 110 POKE 559,0:GOSUB 1500:REM PMG + VB
   I
XR 120 GOSUB 2000:REM ARRAYS + STRINGS
UG 130 GOSUB 5000:REM OPENING-SCREEN
AX 140 GOSUB 3000:REM SCREEN
ZL 149 REM VARIABLES
VV 150 X=14:Y=20
BA 160 LEV=1:SC=0:L=3:BR=0:M=0:MT=0
QL 170 T(1)=1:T(2)=1:T(3)=1:T(4)=1
ZF 180 C(1)=1:C(2)=0:C(3)=0:C(4)=0
QA 199 REM MAIN LOOP
MY 200 FOR I=1 TO 4
BF 210 S=STICK(0):POKE 77,0
BX 220 IF S=7 AND X+(Y-20)*20<27 THEN X=X
   +1:IF X>19 THEN X=0:Y=21
XH 230 IF S=11 AND X+(Y-20)*20>5 THEN X=X
   -1:IF X<0 THEN X=19:Y=20
SJ 240 IF BR=1 THEN 400
FD 250 POSITION X,Y:? #6;A$
CX 270 IF M=1 THEN GOSUB 530
AF 299 REM TUMBLING MAN/SPARK
LO 300 IF SC-LEV*100>0 AND LEV<4 THEN GOS
   UB 800
YS 320 IF C(I)=0 THEN 380
TW 330 POSITION S(C(I),I*2-1),S(C(I),I*2)
   :? #6;" "
BJ 340 C(I)=C(I)+1:IF C(I)=29 THEN GOSUB
   850:GOTO 380
FL 350 POSITION S(C(I),I*2-1),S(C(I),I*2)
   :? #6;CHR$(36+T(I))
IP 360 T(I)=T(I)+1:IF T(I)=5 THEN T(I)=1
GU 365 IF T(I)=122 THEN T(I)=120
ZJ 370 IF S(C(I),I*2)=19 THEN GOSUB 900
GJ 380 NEXT I
MK 390 GOTO 200
ZL 399 REM NO STRETCHER MOVEMENT
QX 400 IF S<>7 AND S<>11 THEN 450
AU 410 POSITION X,Y
KM 420 IF S=7 THEN ? #6;"    !!"
YN 430 IF S=11 THEN ? #6;"    ## "
IJ 440 IF X+(Y-20)*20=27 THEN BR=0
MN 450 GOTO 300
DK 499 REM LOST STRETCHER
KG 500 FOR P=50 TO 70:SOUND 0,P,12,8:NEXT
   P:SOUND 0,0,0,0
LO 510 POSITION X,Y:? #6;"    !!  "
SS 520 BR=1:RETURN
GK 529 REM MEDAL
BW 530 MT=MT-1
VX 540 IF X=5 AND Y=20 THEN 580
HL 550 IF MT>0 THEN RETURN
PP 560 M=0:POSITION 3,20:? #6;",  "
ZP 570 RETURN
WQ 580 FOR P=10 TO 30:SOUND 0,P,10,10:NEX
   T P:SOUND 0,0,0,0:M=0
GI 590 POSITION 3,20:? #6;", ":L=L+1:POSI
   TION 8,3:? #6;INT(L)
AI 595 RETURN
FX 699 REM MAN LOSES LIFE
TU 700 POSITION S(C(I),I*2-1),S(C(I),I*2)
   :? #6;" "
XR 705 IF T(I)>100 THEN 770
JR 710 POSITION S(C(I),I*2-1),S(C(I),I*2)
   +3:? #6;"-"
CV 720 SOUND 0,52,12,10
AI 730 FOR P=1 TO 50:NEXT P
YZ 740 SOUND 0,0,0,0:POSITION S(C(I),I*2-
   1),S(C(I),I*2)+3:? #6;"_"
IN 750 L=L-1:IF L<0 THEN 4000
XN 760 POSITION 8,3:? #6;INT(L);" "
RG 770 GOTO 860
NJ 799 REM EXTRA TUMBLING MAN
OJ 800 LEV=LEV+1
NP 810 FOR J=1 TO 4
CX 820 IF C(J)=0 THEN C(J)=1:J=4
GO 830 NEXT J
ZM 840 RETURN
UC 849 REM MAN IN AMBULANCE
QJ 850 SC=SC+10:POSITION 13,2:? #6;SC
JQ 855 FOR P=10 TO 0 STEP -0.5:SOUND 0,10
   +P*4,10,P:NEXT P
HL 857 IF INT(RND(0)*20)<3 AND M=0 THEN M
   =1:MT=10:POSITION 3,20:? #6;" ;@"
GT 860 C(I)=0
GX 870 R=INT(RND(0)*4)+1:IF C(R)<>0 THEN
   870
WK 880 C(R)=1:T(R)=1
ZM 885 IF INT(RND(0)*9)<LEV THEN T(R)=120
ZW 890 RETURN
FU 899 REM ON STRETCHER ?
IR 900 Z=0
JZ 910 IF X+(Y-20)*20+2>2*S(C(I),I*2-1) O
   R X+(Y-20)*20+4<2*S(C(I),I*2-1) THEN Z
   =1
YD 920 IF Z=0 AND T(I)>100 THEN GOSUB 500
   :GOTO 700
QP 930 IF (Z=1 AND T(I)>0) OR BR=1 THEN 7
   00
UD 940 SC=SC+2:POSITION 13,2:? #6;SC
VN 950 SOUND 0,160,10,8:FOR P=1 TO 2:NEXT
   P:SOUND 0,0,0,0
ZR 960 RETURN
KA 999 REM CH-SET
TF 1000 RT=PEEK(106)-8
AC 1010 FOR I=0 TO 1023
OW 1020 POKE RT*256+I,PEEK(57344+I)
EY 1030 NEXT I
HT 1040 RESTORE 1100
JM 1050 FOR I=1 TO 19
RB 1060 READ C
AC 1070 FOR J=0 TO 7
QW 1080 READ B
FJ 1090 POKE RT*256+C*8+J,B
FC 1100 NEXT J
EU 1110 NEXT I
AH 1120 RETURN
OL 1200 DATA 1,84,84,84,64,169,160,80,168
ZT 1210 DATA 3,21,21,21,1,106,10,5,42
RH 1220 DATA 4,0,0,255,255,0,0,0,0
OU 1230 DATA 5,28,28,73,62,28,28,54,99
LR 1240 DATA 6,33,19,222,252,222,19,33,0
JT 1250 DATA 7,99,54,28,28,62,73,28,28
FZ 1260 DATA 8,132,200,123,63,123,200,132
   ,0
KB 1270 DATA 9,187,187,0,238,238,238,0,18
   7
ZX 1280 DATA 10,248,96,96,96,96,96,224,12
   8
OH 1290 DATA 11,0,28,62,119,99,119,62,28
XA 1300 DATA 12,255,255,255,255,255,255,2
   55,255
GL 1310 DATA 13,108,56,254,16,56,48,60,56
FZ 1320 DATA 14,255,170,85,170,255,0,0,0
XK 1330 DATA 28,0,65,34,8,28,8,34,65
TM 1340 DATA 29,0,73,0,8,93,8,0,73
GX 1350 DATA 30,16,82,74,40,220,248,240,2
   24
ZZ 1360 DATA 31,0,36,36,201,246,240,224,0
```

continued

TO THE RESCUE

```
WR 1370 DATA 27,168,148,148,241,212,240,1
   28,80
WN 1380 DATA 32,0,0,252,252,48,32,168,32
JE 1499 REM P/M GRAPHICS
RY 1500 PMG=PEEK(106)-16:PM=PMG*256
JK 1510 POKE 54279,PMG:POKE 53277,3
MW 1520 FOR I=PM+512 TO PM+768:POKE I,0:N
   EXT I
OB 1525 RESTORE 1550
UH 1530 READ P,B:IF P<0 THEN 1560
IC 1540 POKE PM+P,B:GOTO 1530
FG 1550 DATA 585,24,586,60,587,60,719,24,
   720,24,721,255,722,255,723,24,724,24,-
   1,0
RA 1560 POKE 704,144:POKE 705,50
EL 1599 REM VBI (FLASHING)
OY 1600 RESTORE 1670
KV 1610 FOR I=1536 TO 1561
QQ 1620 READ B
AR 1630 POKE I,B
FN 1640 NEXT I
HL 1650 A=USR(1536)
BD 1660 RETURN
GC 1670 DATA 104,160,10,162,6,169,7,76,92
   ,228
CN 1680 DATA 174,192,2,232,224,160,208,2,
   162,144,142,192,2,76,98,228
FY 1999 REM ARRAYS + STRINGS
TA 2000 DIM A$(10),S(28,8),T(4),C(4)
NC 2010 A$=" !$$$$# "
IC 2020 RESTORE 2100
WV 2030 FOR I=1 TO 8 STEP 2:FOR J=0 TO 28
MO 2040 READ X,Y
OE 2050 S(J,I)=X:S(J,I+1)=Y
WP 2060 NEXT J:NEXT I
CK 2070 HISC=99
BB 2090 RETURN
RN 2100 DATA 0,0,2,6,3,6,4,7,5,8,5,9,5,10
   ,6,11,6,12,6,13,7,14,7,15,7,16,8,17,8,
   18,8,19,9,18,9,17,10,16,10,15,11,14
IR 2110 DATA 12,13,13,12,14,12,15,11,16,1
   2,16,13,17,14,17,15
TM 2120 DATA 0,0,2,9,3,8,3,9,4,10,5,11,5,
   12,5,13,6,14,6,15,6,16,7,17,7,18,7,19,
   8,18,8,17,9,16,10,15,11,15,12,16
RN 2130 DATA 13,17,13,18,13,19,14,18,14,1
   7,15,16,16,15,16,14,17,15
CT 2140 DATA 0,0,2,12,3,13,4,14,5,15,5,16
   ,6,17,6,18,6,19,6,18,6,17,7,16,7,15,8,
   14,8,13,9,13,9,14,9,15,10,16
QE 2150 DATA 10,17,10,18,10,19,11,18,12,1
   7,13,16,14,15,15,14,16,14,17,15
HT 2160 DATA 0,0,2,15,3,16,4,17,4,18,4,19
   ,5,18,5,17,6,16,6,15,7,14,8,14,9,15,10
   ,16,10,17,10,18,10,19,11,18,12,17
LC 2170 DATA 13,16,13,15,14,14,14,13,15,1
   2,16,12,16,13,17,13,17,14,17,15
IC 2999 REM SCREEN
WR 3000 GRAPHICS 17:POKE 756,RT:POKE 559,
   46:POKE 53248,202:POKE 53249,193
IS 3010 DL=PEEK(560)+PEEK(561)*256
LT 3020 POKE DL+24,5:POKE DL+7,2
PJ 3030 SETCOLOR 4,9,6:SETCOLOR 3,2,4:SET
   COLOR 2,0,14:SETCOLOR 1,15,0:SETCOLOR
   0,3,12
AN 3040 FOR I=6 TO 19:POSITION 0,I:? #6;"
   ■■":NEXT I
JY 3050 POSITION 0,5:? #6;"■■":POSITION 0
   ,20:? #6;"■■■,"
MC 3060 FOR I=7 TO 16 STEP 3:POSITION 2,I
   :? #6;"◣":POSITION 2,I-2:? #6;CHR$(158
   +INT(RND(0)*2)):NEXT I
NT 3070 POSITION 17,19:? #6;"■■"
UM 3080 FOR I=16 TO 18:POSITION 17,I:? #6
   ;"■■■":NEXT I
DP 3100 POSITION 5,2:? #6;"SCORE : 0
    LIVES : 3"
BU 3110 POSITION 0,22:? #6;"______________
   __________";
KT 3120 POSITION 15,21:? #6;"■■■■■"
AF 3200 RETURN
WX 3999 REM GAME OVER
XB 4000 FOR I=0 TO 4
WA 4010 FOR J=14 TO 0 STEP -1
BI 4020 SETCOLOR I,14,J
GW 4030 SOUND 0,I*20+40,10,J:SOUND 1,I*19
   +35,10,J
FP 4040 NEXT J
FH 4050 NEXT I
UO 4060 SOUND 0,0,0,0:SOUND 1,0,0,0
RP 4100 GRAPHICS 0:POKE 752,1:POKE 53248,
   0:POKE 53249,0
AF 4110 SETCOLOR 2,12,2:SETCOLOR 4,12,2:S
   ETCOLOR 1,12,14
PM 4120 POSITION 10,5:? "*** > GAME OVER
   < ***"
MT 4130 POSITION 15,13:? "SCORE   :  ";SC
LH 4140 IF SC>HISC THEN HISC=SC
QK 4150 POSITION 15,15:? "HISCORE :  ";HI
   SC
GJ 4160 POSITION 6,22:? "press START for
   another game"
UN 4165 RES=5500:RESTORE RES
QJ 4170 IF PEEK(53279)=6 THEN 130
BK 4180 GOSUB 5200:GOTO 4170
KN 4999 REM OPENING-SCREEN
JI 5000 GRAPHICS 17
ST 5010 SETCOLOR 4,0,2:SETCOLOR 0,8,10:SE
   TCOLOR 1,2,6:SETCOLOR 2,2,10:SETCOLOR
   3,14,8
VN 5020 POSITION 3,6:? #6;"TO THE RESCUE!
   "
QR 5030 POSITION 3,7:? #6;"--------------
   "
FF 5040 POSITION 9,14:? #6;"by"
MR 5050 POSITION 7,16:? #6;"W.SCHUL"
UQ 5060 POSITION 1,22:? #6;"press START t
   o play"
UM 5090 RES=5600:RESTORE RES
AE 5100 IF PEEK(53279)=6 THEN SOUND 0,0,0
   ,0:SOUND 1,0,0,0:RETURN
VA 5110 GOSUB 5200:GOTO 5100
AL 5199 REM TUNE PLAYER
CX 5200 READ S,B:IF S<0 THEN RESTORE RES:
   GOTO 5200
HH 5210 SOUND 0,0,0,0
EA 5220 SOUND 1,B,10,4
VT 5230 FOR I=1 TO 4 STEP 0.4
GX 5240 SOUND 0,S+2*(I=INT(I)),10,5+4*(I<
   >INT(I))
FM 5250 NEXT I
AZ 5260 RETURN
PB 5500 DATA 123,251,123,251,123,251,123,
   251,108,217,108,217,96,193,96,193,96,1
   93,96,193
GS 5510 DATA 91,182,81,182,91,162,81,162,
   96,193,96,193,96,193,96,193,91,182,81,
   182,72,162,81,162
XG 5520 DATA 91,182,91,182,91,182,91,182,
   96,192,108,192,96,217,108,217,-1,0
EI 5600 DATA 72,144,91,144,72,182,91,182,
   96,193,123,193,96,251,123,251
XW 5610 DATA 96,193,91,182,81,162,72,144,
   91,144,72,144,91,182,91,182,91,217,108
   ,217,96,193,123,251
DU 5620 DATA 0,193,0,182,0,162,-1,0
```

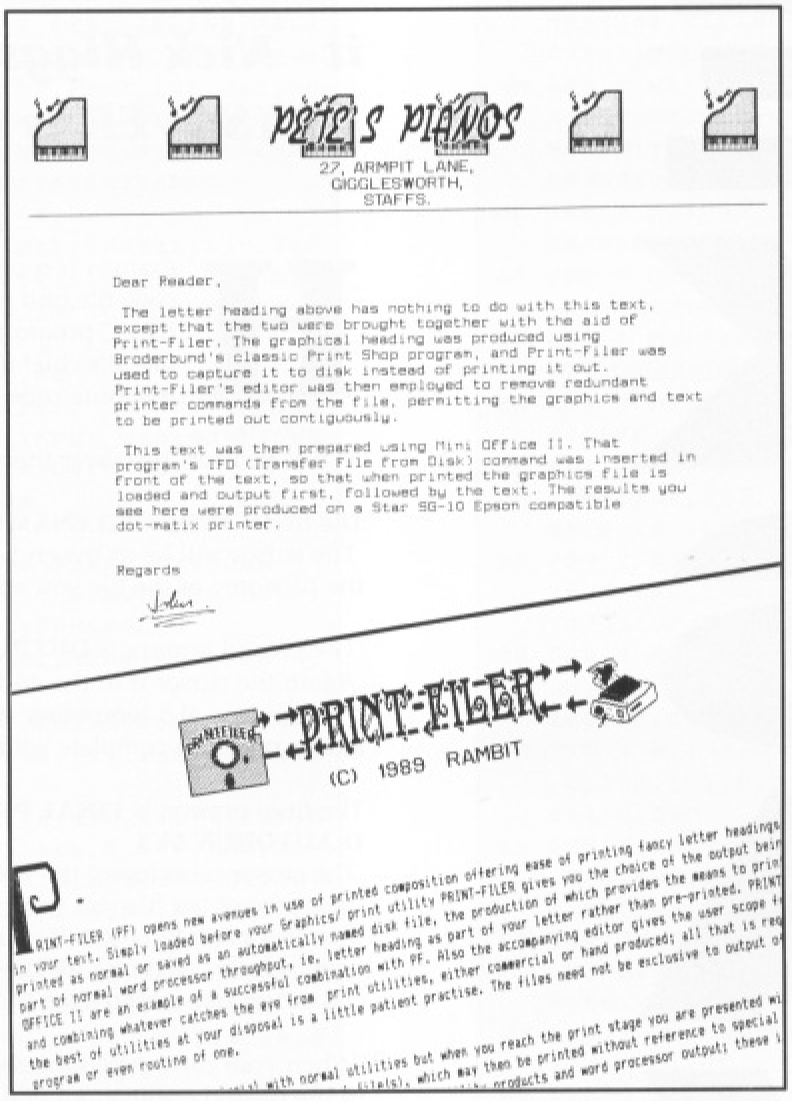
PRINT-FILER

John S Davison tries a new utility that allows text and graphics to be combined

Have you ever wanted to create a fancy letter heading using Broderbund's excellent Print Shop, and then print out below it a letter created with a word processor? Or needed to embed a computer produced graph into some text you've written? If so, Print-Filer could help you, as its purpose in life is to produce and print composite documents containing a mixture of text and graphics.

The package consists of just one single sided disk. Instructions are in a file on the disk, and if you follow the guidance on the disk's dust jacket you'll soon have them printed on paper. In fact you end up with a six page document containing both the instruction text and graphics from several sources. That's right, Rambit produced it all using Print-Filer! The disk also holds the main program code, plus several demo files for you to look at and experiment with.

To use Print-Filer you'll need a machine with 64K memory (800XL, 65XE, 130XE), a disk drive, an Epson compatible printer, and graphical print software which will run in 48K.


PETE'S PIANOS
27, ARMPIT LANE,
GIGGLESWORTH,
STAFFS.

Dear Reader,

The letter heading above has nothing to do with this text, except that the two were brought together with the aid of Print-Filer. The graphical heading was produced using Broderbund's classic Print Shop program, and Print-Filer was used to capture it to disk instead of printing it out. Print-Filer's editor was then employed to remove redundant printer commands from the file, permitting the graphics and text to be printed out contiguously.

This text was then prepared using Mini Office II. That program's TFD (Transfer File from Disk) command was inserted in front of the text, so that when printed the graphics file is loaded and output first, followed by the text. The results you see here were produced on a Star SG-10 Epson compatible dot-matix printer.

Regards

PRINT-FILER
(C) 1989 RAMBIT

PRINT-FILER (PF) opens new avenues in use of printed composition offering ease of printing fancy letter headings
in your text. Simply loaded before your Graphics/ print utility PRINT-FILER gives you the choice of the output bein
printed as normal or saved as an automatically named disk file, the production of which provides the means to prin
part of normal word processor throughput, ie. letter heading as part of your letter rather than pre-printed. PRINT
OFFICE II are an example of a successful combination with PF. Also the accompanying editor gives the user scope f
and combining whatever catches the eye from print utilities, either commercial or hand produced; all that is req
the best of utilities at your disposal is a little patient practise. The files need not be exclusive to output o
program or even routine of one.

When you boot up Print-Filer it cunningly installs itself in the RAM under the Operating System ROM. This is why your other software should be able to run in 48K, otherwise Print-Filer would be fighting it for the same memory area. A special cut down version of Print-Filer is supplied, however, which can share some of that memory with certain other programs. Once Print-Filer is installed you can then load your print software, and run it as normal.

DISK OR PRINTER?

Print-Filer lurks under the ROM watching for print requests from your other software. When it sees one it asks whether you want to use the printer as normal, or write the output to disk instead. In this way you can, for instance, get Print Shop to write that fancy letter heading (or anything else it creates) into a disk file instead of direct to paper.

Print Shop inserts printer control characters to space down to the next page after printing the letter heading. If you want your text to follow the heading, you need to remove those redundant control characters by using Print-Filer's editor, which you load as a separate program.

Editing is where things start getting hairy. Graphical print data looks totally incomprehensible to most people, so you need help if you're going to edit it. Print-Filer's editor breaks the data stream up into individual print commands, and lets you list them with one command per line. It also translates some of the commands into English for you, such as ESCape, and CR (Carriage Return), but everything else tends to be hidden. You can request it to be displayed, but it's then shown in hexadecimal format!

To REALLY understand what's going on you need to be thoroughly au fait with your printer's command codes, however if all you want to do is shunt some text behind a letter heading, or sandwich a graph between two chunks of text you can get away with knowing a bare minimum about them.

I tried using Atariwriter Plus to produce the text to append to the letter heading, but you can't use Print-Filer to capture the text as Atariwriter Plus needs that memory under the ROM for itself. It is capable of printing directly to disk anyway, so you can then use DOS to copy/append it to your existing Print Shop graphic file. After further editing you may then print the composite document using the Print function provided in Print-Filer's editor.

Another possibility is to keep the graphics files separate from the text and use your word processor's 'embed file' command to insert the graphics into the text at the appropriate point. I tried this with Atariwriter Plus, but it misinterpreted the graphics data stream and got thoroughly confused. This approach worked fine with Mini Office II, though.

ROTTWEILER!

Print-Filer is also capable of handling more complex editing tasks such as selectively copying/overlaying part of one graphic into another. Try this and you'll suddenly realise some aspects of Print-Filer are about as friendly as a Rottweiler with acute bellyache! I'm not joking - you have to manipulate the print line data directly in memory, and keep track of everything yourself using hexadecimal addressing! OK, so Print-Filer helps you do hexadecimal arithmetic and hex-dec-hex conversions, but for heaven's sake! It's almost as bad as machine language programming!

Overall, Print-Filer is a good idea, and with skill and patience you can produce good results with it - particularly in conjunction with Print Shop and Mini Office II. I suspect it may be just too complex for the general user, but all you techie types may find it a useful utility to have around.

PRINT FILER IS AVAILABLE FROM RAMBIT PRICE £8.00

HEXSAVER

Remember the ANALOG magazine loader program that most people use to load machine language games? Now you no longer need to use it - Nick Higgs new program HEXSAVER is twice as fast!

Hexsaver is a program which will take any object code file and produce from it a self contained BASIC program which can be used to type in the file. It's chief use would be for the typing in of machine code files.

When you run Hexsaver there are three simple prompts.

The first is **INPUT FILENAME D:**
The cursor will be at the end of the D: and you simply complete the filename of the file you wish to convert.

The second prompt is **OUTPUT FILENAME D:**
Again the cursor is at the end of the D: and you simply complete the filename of a temporary file to which you will LIST the BASIC loader program complete with hexadecimal code.

The final prompt is **FINAL PROGRAM'S OUTPUT FILENAME D:AUTORUN.SYS**
The cursor is on top of the the A of AUTORUN.SYS and if this is the name of the file you want the BASIC program to recreate then just press RETURN. If you require to use another name then type over the filename AUTORUN.SYS and be sure to delete an characters remaining from that name.

When your have typed the three filenames HEXSAVER will read in the file to be converted and then LIST the BASIC loader and hex code to disk using the filename you supplied to the second prompt. As each line of data is written the message WRITING LINE xxxx will be displayed until the complete file has been LISTed to disk. As the file is in LIST format you should resave it by typing NEW and then ENTER [filename]. Once loaded the program should be SAVEd back to disk. If you use the same filename as your temporary LIST file then that file will be overwritten.

RECREATING PROGRAMS

In use HEXSAVER is extremely fast, checking your typing and writing to disk as it goes and I hope that it becomes the new standard for type-in magazine programs.

NEW ATARI USER is mightily impressed by this program although its major disadvantage is that it cannot create boot tapes. We would like any contributors who submit machine code listings for disk only to use HEXSAVER as the BASIC loader. Authors will find it fast and easy to use and readers will be delighted with its speed.

HEXSAVER

```
CS 1 REM ##############################################
AS 2 REM #              HEX SAVER                    #
LT 3 REM #                  by                       #
MT 4 REM #              Nick Higgs                   #
HG 5 REM #                                           #
SH 6 REM # ---------------------------- #
LT 7 REM # NEW ATARI USER  February 90 #
CZ 8 REM ##############################################
TS 10 DIM INFILE$(20),OUTFILE$(20),PROGFILE$(20),LINE$(40),LINEOUT$(80),MC$(42),BS$(20)
JW 20 FOR A=1 TO 42:READ DA:MC$(A,A)=CHR$(DA):NEXT A
HA 30 DATA 104,162,16,104,157,69,3,104,157,68,3,169,7,157,66,3,169,128,157,73,3
AW 40 DATA 169,0,157,72,3,32,86,228,162,16,189,73,3,133,213,189,72,3,133,212,96
EO 50 LINEOUT$(1)=CHR$(0):LINEOUT$(80)=CHR$(0):LINEOUT$(2)=LINEOUT$:BS$(1)=CHR$(30):BS$(20)=CHR$(30):BS$(2)=BS$
IL 60 TRAP 80:POKE 764,44
OI 70 ? CHR$(125);CHR$(29);CHR$(29);" INPUT  FILENAME : D:";BS$(1,2);:INPUT #16;INFILE$:OPEN #1,4,0,INFILE$:GOTO 90
WL 80 GOSUB 590:GOTO 60
BV 90 TRAP 110:POKE 764,44
NG 100 ? CHR$(29);CHR$(29);" OUTPUT FILENAME : D:";BS$(1,2);:INPUT #16;OUTFILE$:OPEN #2,8,0,OUTFILE$:GOTO 120
SN 110 GOSUB 590:GOTO 60
PD 120 TRAP 590
OM 130 POKE 764,44:? "↓↓ FINAL PROGRAM'S":? " OUTPUT FILENAME : D:AUTORUN.SYS";BS$(1,13);:INPUT #16;PROGFILE$
GU 140 FOR A=1536 TO 1682:READ DA:POKE A,DA:NEXT A
CA 150 DATA 104,104,133,205,104,133,204,104,133,207,104,133,206,169,255,141,145,6,160,0
MB 160 DATA 140,146,6,238,145,6,173,145,6,201,40,208,1,96,172,145,6,177,204,32
NA 170 DATA 66,6,172,146,6,173,143,6,145,206,200,140,146,6,173,144,6,145,206,200
CU 180 DATA 140,146,6,76,23,6,141,130,6,41,240,74,74,74,74,141,143,6,173,130
UH 190 DATA 6,41,15,141,144,6,173,143,6,32,131,6,141,143,6,173,144,6,32,131
BX 200 DATA 6,141,144,6,169,0,133,212,133,213,168,24,165,212,113,204,133,212,165,213
KP 210 DATA 105,0,133,213,200,192,40,208,238,96,1,201,10,144,4,24,105,55,96,24
YH 220 DATA 105,48,96,48,49,40,80
RQ 230 DIM A$(20000):A$(1)="♥":A$(20000)="♥":A$(2)=A$
BK 240 ? "↓↓LOADING ";INFILE$
FM 250 LN=USR(ADR(MC$),ADR(A$)):A$=A$(1,LN)
VZ 260 GOSUB 390
GN 270 LINE=990:POS=-39
BL 280 LINE=LINE+10:? "WRITING LINE ";LINE
JJ 290 ? #2;STR$(LINE);" DATA ";
IP 300 LINE$(1)=CHR$(0):LINE$(40)=CHR$(0):LINE$(2)=LINE$
OY 310 POS=POS+40:POS1=POS+40:IF POS1>LEN(A$) THEN POS1=LEN(A$):LINE$=A$(POS,POS1):GOTO 360
LT 320 LINE$=A$(POS,POS1)
HU 330 CHKSUM=USR(1536,ADR(LINE$),ADR(LINEOUT$))
AU 340 ? #2;LINEOUT$;",";STR$(CHKSUM)
PM 350 GOTO 280
IA 360 CHKSUM=USR(1536,ADR(LINE$),ADR(LINEOUT$))
QH 370 ? #2;LINEOUT$(1,((POS1-POS+1)*2));",";STR$(CHKSUM)
OI 380 END
TD 390 ? #2;"10 DIM LINE$(80),LINEOUT$(40):OPEN #1,8,0,";CHR$(34);PROGFILE$;CHR$(34)
XR 400 ? #2;"20 LINE=990:TRAP 100:GOSUB 200"
OX 410 ? #2;"30 LINE$(1)=";CHR$(34);"0";CHR$(34);":LINE$(80)=";CHR$(34);"0";CHR$(34);":LINE$(2)=LINE$";
WM 420 ? #2;":LINEOUT$=LINE$(1,40)"
LI 430 ? #2;"40 LINE=LINE+10:READ LINE$,CHKSUM:? ";CHR$(34);"CHECKING LINE ";CHR$(34);";LINE"
HK 440 ? #2;"50 CHK=USR(1536,ADR(LINE$),ADR(LINEOUT$))"
AF 450 ? #2;"60 GOSUB 300:? #1;LINEOUT$(1,LEN(LINE$)/2);:GOTO 30"
QE 460 ? #2;"100 ? #1:CLOSE #1:? ";CHR$(34);"WORKED OKAY !";CHR$(34);":END"
EN 470 ? #2;"200 FOR A=1536 TO 1658:READ D:POKE A,D:NEXT A:RETURN"
DM 480 ? #2;"210 DATA 216,104,104,133,204,104,133,203,104,133,206,104,133,205,169,0,141,127,6,141"
NA 490 ? #2;"220 DATA 128,6,160,255,140,125,6,140,126,6,173,126,6,201,39,208,11,173,127,6"
CE 500 ? #2;"230 DATA 133,212,173,128,6,133,213,96,172,125,6,200,140,125,6,177,203,32,111,6"
EQ 510 ? #2;"240 DATA 10,10,10,10,141,123,6,172,125,6,200,140,125,6,177,203,32,111,6,24"
TX 520 ? #2;"250 DATA 109,123,6,172,126,6,200,140,126,6,145,205,24,109,127,6,141,127,6,173"
EI 530 ? #2;"260 DATA 128,6,105,0,141,128,6,76,30,6,96,201,58,144,4,56,233,55,96,56,233,48,96"
WJ 540 ? #2;"300 DLNE=PEEK(184)*256+PEEK(183)"
EI 550 ? #2;"310 IF LINE<>DLNE THEN ? ";CHR$(34);"LINE ";CHR$(34);";STR$(LINE);";CHR$(34);" MISSING!";CHR$(34);":END"
LR 560 ? #2;"320 IF CHKSUM<>CHK THEN ? ";CHR$(34);"ERROR IN DATA AT LINE ";CHR$(34);";STR$(LINE):END"
LV 570 ? #2;"330 RETURN"
ZR 580 RETURN
VF 590 TRAP 590:POSITION 2,18:? "ERROR !"
IW 600 IF PEEK(195)=162 THEN ? "ERROR DISK HAS NO FREE SECTORS"
CD 610 IF PEEK(195)=165 THEN ? "ERROR IN ABOVE FILENAME CHARACTERS"
VV 620 IF PEEK(195)=169 THEN ? "ERROR DISK MORE THAN 64 FILES"
MP 630 IF PEEK(195)=170 THEN ? "ABOVE FILE NOT FOUND"
MU 640 POSITION 2,22:? "HIT ANY KEY AND THEN TRY AGAIN"
PK 650 POKE 764,255:CLOSE #1:CLOSE #2
JQ 660 IF PEEK(764)=255 THEN 660
XA 670 POKE 764,255
ZS 680 RETURN
```

TURBO BASIC

A TUTORIAL SERIES BY GORDON CAMERON

5. THE FINAL ROUND UP

I would like to start off this issue by apologising for the absence of this column for the past two issues. This was unfortunately unavoidable, and I hope I haven't lost too many people because of it. Anyway, thanks to those of you who have stuck with the articles - I have had a surprising amount of mail, which only goes to show what a sizeable following both the language and the 8-bit machine still have. I still have a few people to reply too - I will get round to it, as I try to reply to everyone's letters.

LETTERS

Andrew Stephenson from Knottingley in Yorkshire sent a very interesting letter singing the praises of Turbo Basic. As he points out, the language has all the extra features, yet leaves the programmer more memory than the old basic. Andrew was interested in finding out if he could write a program in TB, compile it, and then distribute it to interested parties, along with the runtime unit, without infringing copyright. I'm happy to say that you are perfectly at liberty to do this - in fact, the entire Turbo Basic language package can be freely distributed without copyright infringement, as long as this is done without profit to the person doing the distributing. In other words, as long as you don't charge people for the programs (apart from a nominal copying amount, or the price of an SAE), you are free to distribute them as you wish - in fact, this helps to spread the language, so more people get to hear about it. If Andrew, or anyone else for that matter, lets me know about programs they have written that they think may be of interest to others, then I will be more than happy to pass on this information to other readers.

Nigel Edwards from Leighton Buzzard kindly send me a disk of programs as well as a listing. He had trouble trying to get a couple of programs from Stephen Williamson's excellent Machine Code Library to work under Turbo, so set about writing the code to correct this. The article in question was in the JUNE/JULY issue, and dealt with the loading and saving of screens to disk. As I have included a somewhat simpler program in a similar vein here, I've decided not to include his program, however if you are interested drop me a line and I'll be happy to send a copy of his program.

James Easter, among others, noticed another deliberate(!) mistake in Issue 39 - I stated at one point, incorrectly, that the hexadecimal digits A through F corresponded to the decimal numbers 11-16. This is WRONG, and as I mentioned later on, A actually equals 10, B is 11, C is 12 and so on. Apologies for any confusion.

Finally, Mr.X from Toytown asked about some of the commands which I hope to explain this issue, as well as including some very useful programming aids written for Turbo Basic. These arrived too late to be included in this issue, but I'll try and include them next time.

I'll try and finish off my tour of Turbo Basic this time with a look at all those commands that I've missed out in previous issues, along with a summary of where and when I covered the others.

COMMAND ENHANCEMENTS

DIM: As well as providing us with enhancements to the original Basic, TB also modifies and improves on some of the earlier language's commands. The first such command is DIM, and has, as before, the format:

```
DIM a(n)

or

DIM a$(n)
```

where a is a real variable, a$ a string name, and n an integer. In old Atari Basic, this command merely set aside space for the array in memory, without bothering about the contents of that memory. In TB, the DIM statement allocates the space, and also CLEARS each of the elements in the array. In the case of a numeric array, the elements become zero, and with a string, the elements become null characters (ASCII value 0). For example:

```
DIM A(10)
```

sets aside space for 10 elements, as well as setting A(1),A(2) .... A(10) to have value zero.

INPUT: How many times have you had to first print a prompt onto the screen, and then have another statement to get the response from the user. If the answer is 'many', then the modified 'INPUT' command will come as a boon. As well as acting as it did before, you can also have an optional string of text before the variables:

```
INPUT "This is a prompt>";a,b,c
```

The text string is printed, and the cursor appears immediately after the string where you can type in the values required. For example:

```
INPUT "Please type in a number --> ";NUM
```

will prompt for a number, which will be stored in the variable NUM.

```
EX 1 REM ##################################################
HT 2 REM #            TURBO BASIC              #
CZ 3 REM #       Saving and Loading            #
OZ 4 REM #         Graphics Screens            #
MF 5 REM #                by                   #
VT 6 REM #          Gordon Cameron             #
HE 7 REM # -------------------------- #
UK 8 REM # NEW ATARI USER February 90 #
FF 9 REM ##################################################
QM 100 REM
DX 120 GO# MAIN
OU 130 ------------------------------
OW 140 ------------------------------
DE 150 PROC SETUP
ZS 160    DIM NAME$(20)
LL 170    DIM BLANK$(120)
FJ 180    BLANK=ADR(BLANK$)
JH 190    FOR LOOP=41 TO 120:BLANK$(LOOP)=
   CHR$(40):NEXT LOOP
UJ 200    NAME$="D:TEST.PIC"
KG 210    NUM_BYTES=320*192/8
VO 220 ENDPROC
OV 230 ------------------------------
OX 240 ------------------------------
GK 250 PROC WAIT
UK 260    WHILE INKEY$="":WEND
VY 270 ENDPROC
PF 280 ------------------------------
PH 290 ------------------------------
FE 300 PROC WIPE
UJ 310    FOR LOOP=0 TO 7600 STEP 40
ID 320       MOVE BLANK,START+LOOP,120
ZS 330    NEXT LOOP
BQ 340    FOR LOOP=7600 TO 0 STEP -40
IJ 350       MOVE BLANK,START+LOOP,120
ZY 360    NEXT LOOP
VG 370    TEXT 110,94,"PRESS A KEY"
WB 380 ENDPROC
PI 390 ------------------------------
```

```
OR 400 ------------------------------
DD 410 PROC SAVE
CZ 420    START=DPEEK(88)
QG 430    OPEN #1,8,0,NAME$
HK 440    BPUT #1,START,NUM_BYTES
KQ 450    CLOSE #1
VY 460 ENDPROC
PF 470 ------------------------------
PH 480 ------------------------------
WU 490 PROC LOAD
CW 500    START=DPEEK(88)
NV 510    OPEN #1,4,0,NAME$
YZ 520    BGET #1,START,NUM_BYTES
KN 530    CLOSE #1
VU 540 ENDPROC
PC 550 ------------------------------
PE 560 ------------------------------
EJ 570 PROC DRAW
AW 580    GRAPHICS 24:COLOR 1
AS 590    TEXT 137,94,"PAGE 6"
QQ 600    FOR LOOP=16 TO 96 STEP 12
EM 610       CIRCLE 160,96,LOOP
PG 620       CIRCLE 160,96,LOOP,LOOP+12
DI 630       CIRCLE 160,96,LOOP+12,LOOP
ZK 640    NEXT LOOP
VY 650 ENDPROC
PF 660 ------------------------------
PH 670 ------------------------------
WZ 680 # MAIN
AG 690 EXEC SETUP
AM 700 EXEC DRAW
ZV 710 EXEC SAVE
BX 720 TEXT 137,94,"SAVED!"
CD 730 EXEC WIPE
DC 740 EXEC WAIT
SP 750 TEXT 110,94,"..LOADING.."
TG 760 EXEC LOAD
CR 770 TEXT 129,94,"EH VOILA!"
DK 780 EXEC WAIT
```

GET AND PUT: Whilst on the subject of output, it's perhaps worth mentioning the command **PUT**, which can now be used to display a character on the screen, by specifying its ATASCII number. For example:

PUT 65

prints the character 'A' on the screen, and is in fact identical to doing PRINT "A". It is useful for displaying control characters in a shorter, simpler way. Just remember that anywhere you see PRINT CHR$(n), you can now replace it with PUT n. Hence, PUT 125 clears the screen.

GET is the opposite of PUT (surprisingly enough!) and is a simple way of waiting for a key press, and then storing the key pressed, without needing to worry about opening and closing channels, as you had to in Atari Basic. So:

GET WHICH_KEY

will store the value 65 in WHICH_KEY when 'A' is pressed on the keyboard. This is equivalent to doing something like: OPEN #6, 4, 0, "K:": GET #6, WHICH_KEY: CLOSE #6. Given the choice, which would you use!

LIST, DEL, SOUND and CLOSE: Also conveniently, **LIST** has been modified so that you can list program lines from a certain line to the END of the program, even if you don't know what the last line is. For example:

LIST 100,

will list all the lines from line 100 to the end of your program.

If you're feeling destructive, then you can delete multiple lines in one swift blow. In this case, there is no original command to do a similar job, so TB introduces a new keyword, **DEL**, which you can use to get rid of bits of program. 'DEL START,STOP' will delete all the lines between START and STOP. So:

DEL 10,100

deletes all the lines between 10 and 100 (inclusive). This saves you the trouble of tediously typing 10 then 20 then 30 .... and so on ad nauseum!

A couple more modifications are made to the keywords **CLOSE** and **SOUND**. If you use the word CLOSE on its own in a

continued overleaf

program, it now closes ALL 7 channels (1-7). SOUND on its own turns of all the sound channels.

PROGRAMMING OPTIONS

A few people have written in to say that they diskovered the available commands as I did, with a disk sector editor! They mention the commands ***L**, ***F** and ***B**, and wonder, as I did, what they do. Well, all can be revealed!

When Frank Ostrowski wrote the language, he 'altered' the programming environment, and 'corrected' an anomaly of the old basic, but left the programmer the option to revert to the old system.

The most noticeable visual change is the indenting that TB automatically induces in your programs. Although this is generally thought to be a good thing, you can revert to no indentation by typing '*L-'. To switch the indentation back on, type '*L+' or '*L' - this is the default.

When you write programs and want to check for all possible eventualities and/or errors you can use the TRACE command. In Turbo Basic, including '*B' or '*B+' allows the BREAK key to trigger the TRACE call - in other words, the program doesn't have to stop when you press BREAK. '*B-' switches this option off. You can switch this feature on and off throughout the program, perhaps enclosing a part of the program which you do not want the user to stop in by '*B' ... '*B-'. (i.e. using the line '*B' before the bit of program, and '*B-' after).

Finally, there is a bug in Atari Basic which means that FOR loops which 'go backwards' execute at least once. So:

```
FOR A=5 TO 1: PRINT "This is an error !!": NEXT A
```

would print the error message even although the loop shouldn't really execute at all! Using '*F' or '*F+' corrects this bug, but if you really insist that this bug is a feature, then '*F-' will return you to Atari Basic style loops!

DISK I/O

The **BPUT** and **BGET** commands are useful additions to the programmers library, and I've included a short program which shows how they can be used to load and save a Graphics 8 screen. The format is 'BPUT #N,ADDRESS,HOWMANY' and this writes 'HOWMANY' bytes from memory address 'ADDRESS' onwards to channel 'N'.

BGET operates in a similar fashion ('BGET #N,ADDRESS,HOWMANY'). This reads 'HOWMANY' bytes from channel 'N' into the memory address 'ADDRESS' onwards.

These two commands are convenient for writing blocks of memory to disk, tape or memory (including screen memory, as shown in the accompanying listing). BGET and BPUT are actually useful shorthand. For example:

```
BPUT #1,DPEEK(88),100
```

and

```
FOR A=0 to 99: PUT #1,DPEEK(88)+A: NEXT A
```

do the same thing, namely writing 100 bytes from screen memory to Channel 1.

ODDS and ENDS

A few more commands will finish up this five part introduction to Turbo Basic. These, together with the others I've tried to describe, should hopefully leave you with a wealth of features to use in your own programs.

PAUSE: Rather than have empty loops,like:

```
FOR A=1 to 10000: NEXT A
```

to cause delays in your program, a command 'PAUSE' is available. 'PAUSE HOWMANY' will stop the running of your program for HOWMANY/50 seconds. So:

```
10 PAUSE 500
```

will stop your program at line 100 for 5 seconds.

INSTR and UINSTR: These are somewhat strange commands in that they do not appear in many languages. Usually, you have to write a procedure to do this for yourself, but Turbo gives you two ready written routines. What do they do? Both commands allow you to find a small string inside a larger one. For example, the string "Future is Promises" contains the substring "Promises". Basically, what these commands do is to find IF a smaller string is contained within another, and if so, where that string starts. An example should serve to explain. Say we have a string variable TEST$, and:

```
TEST$="test"
```

Then, the command:

```
PRINT INSTR("This is a test",TEST$)
```

would print out the value 11, as this is where the smaller string ("test") appears in the larger one ("This is a test"). However, if the smaller string is NOT present, then

```
PRINT INSTR("This will return zero",TEST$)
```

will print out the value 0, as "test" does not appear in the target string. More generally,

```
INSTR (BIG$,LITTLE$)
```

will look for the string LITTLE$ in BIG$ and, if it is present, will give a number which tells you where the substring occurs, or will give 0 if it is not present.

This might all seem gobbledegook, but try it to get the hang of the command, and you'll be surprised how simple and useful it is. After experimenting, you'll probably find out that INSTR doesn't check for words of different case (capitals and small letters). So:

```
PRINT INSTR("This is a test","TEST")
```

will print zero, as the word 'test' is in capitals in the substring, but lower case in the longer string.

The command UINSTR, however disregards the case of the strings, so the earlier example will give the expected answer of 11 if you replace INSTR by UINSTR. You can, in addition, also add a number to the 'arguments' that INSTR and UINSTR take.

For example:

```
PRINT UINSTR ("This is a test, so it is","IS")
```

will print out 6 (the first occurrence of "is"), whereas

```
PRINT UINSTR ("This is a test, so it is","IS",10)
```

will print out 23 (the position of the 2nd occurrence of "is"). The number 10 tells the computer to only look at the big string after the 10th letter. In general:

```
INSTR (BIG$,LITTLE$,N)
```

will look for LITTLE$ after the Nth letter in BIG$.

Don't worry if you don't follow this completely - practise, and you'll quickly become expert!

TIME and TIME$: Phew !! The last two commands - and about time(sic!). As you would expect,

```
A=TIME
```

stores the time in variable A, but in a numerical format, whereas,

```
A$=TIME$
```

stores the time in a readable fashion in A$. This is only really of use if you either set the time beforehand, or have a built in clock card. The TIME function, however, can be used to time how long a bit of your program takes. For example:

```
------ Start of your program
------
1000 A=TIME
------ The bit you want to time
------
9000 PRINT (TIME-A)
```

will print out on the screen how long it took the computer to execute the program lines between 1000 and 9000. Simple, eh!

FINISHING OFF

Well, I've made it. I'm sorry if the above seems a bit of a muddle, but I felt I had better complete the picture, so to speak. You now know as much as I do, so I'll have to watch what I say from now on and not let any errors creep in!! The accompanying listing is a short demonstration which saves a GR.8 screen to disk, and then loads it in again. It should be easy enough for you to use the save and load routines within your own program, with very few changes - I hope you find it useful. Table 1 shows which commands I've covered, and in which issue I explained, or tried to explain, them!

That about rounds things off for another couple of months so, as ever, all that remains is for me to ask you to write in with any suggestions, comments, or programs you wish to pass on. From now on, I will have to rely more heavily on your ideas, so please do get in touch - I will do my best to reply. Finally my thanks to Andrew and Scott for help with the article.

Write to GORDON CAMERON,
c/o 13 Muir Bank, Scone, Perthshire, PH2 6SZ

TURBO BASIC COMMAND SUMMARY

Command	Usage	Description	Issue
--	--	Generates an entire line of - comments	36
!	A!B	Bitwise OR (A OR B)	39
and	AandB	Bitwise AND (A AND B)	39
#	#	LABEL Sets a label called LABEL	37
*B	*B[-]	Enable/Disable BREAK key trap	This
*F	*F[-]	Enable/Disable loop correction	This
*L	*L[-]	Enable/Disable indentation	This
BGET	BGET #N,A,B	Stores B bytes from channel N at A	This
BLOAD	BLOAD FILE$	Binary load (DOS option L)	36
BPUT	BPUT #N,A,B	Copies B bytes to channel N from A	This
BRUN	BRUN FILE$	Binary run (DOS option L - RUN)	36
CIRCLE	CIRCLE X,Y,Z1[,Z2]	Circle at (x,y) with radii Z1 and Z2	38
CLOSE	CLOSE	Closes all channels 1-7	This
CLS	CLS	Clears the screen	38
DEC	DEC(HEX$)	Decimal value of Base 16 HEX$	39
DEL	DEL A,B	Deletes all lines from A to B	39
DELETE	DELETE FILE$	Deletes file(s)	36
DIR	DIR PATH$	Displays file directory	36
DIM	DIM A(N),A$(N)	Sets elements to zero(A) or null(A$)	This
DIV	A DIV B	Integer division of A by B	39
DO..LOOP	------------	Loop between DO and LOOP - see article	36
DPEEK	DPEEK(X)	Same as PEEK(X)+256*PEEK(X+1)	38
DPOKE	DPOKE X,Y	Y (up to 65536) stored in X and X+1	38
DUMP	DUMP	Display values of all variables	37
ERL	ERL	Line where last error occurred	38
ERR	ERR	Value of last error	38
EXEC	EXEC PROCNAME	Executes procedure PROCNAME	37
EXIT	EXIT	Exit from a DO..LOOP	36
EXOR	A EXOR B	Bitwise Exclusive-Or	39
FCOLOR	FCOLOR A	Sets fill colour to A	38
FILLTO	FILLTO X,Y	Fills area which contains (X,Y)	38
FRAC	FRAC(A)	Gives the fractional part of A	39
GET	GET A	Stores ASCII of key pressed in A	This
GO#	GO# LABEL	Jump to line with LABEL:	37
GO TO	GO TO N	Same as GOTO N	37
HEX$	HEX$(DEC)	Converts decimal DEC to Base 16 string	39
IF.ELSE.ENDIF	---------	IF (condition) THEN do something	36
ELSE		do something else	
ENDIF			
INKEY$	INKEY$	Returns key pressed or null	39
INPUT	INPUT A$;A,B	Prompts with A$ for A and B	This
INSTR	INSTR(A$,B$[,C])	Find B$ in A$ [starting at C]	This
LIST	LIST LINE,	Lists lines from LINE to end of prog	This
LOCK	LOCK FILE$	Locks files on disk	36
MOD	A MOD B	Remainder after A DIV B	39
MOVE/-MOVE	MOVE A,B,C	Copies C bytes from A to B (- for reverse)	38
ON..EXEC	ON A EXEC B,C,D..	Execute B,C,D depending on value of A	37
ON..GO#	ON A GO# A1,A2..	Go to label A1 or A2 depending on A	37
PAINT	PAINT X,Y	Fill area which has (X,Y) in it	38
PAUSE	PAUSE X	Pauses for (X/50) seconds	This
POP	POP	POPs runtime stack for loops	--
PROC..END-PROC	PROC NAME..END-PROC	Defines a procedure called NAME	37
PUT	PUT X	Prints the character with ASCII val. X	This
RAND	RAND (X)	Gives p-random number between 0 and X	--
RENAME	RENAME A$,B$	Rename file(s) A$ as B$	36
RENUM	RENUM A,B,C	Renums prog from A to become B with gaps of C	36
REPEAT..UNTIL	REPEAT..UNTIL COND	Repeats code until condition COND true	36
SOUND	SOUND	Switches off all sound channels	This
TEXT	TEXT X,Y,A$	Displays text on graphics screen (X,Y)	38
TIME	TIME	Return numeric value of clock time	This
TIME$	TIME$	Returns string value for time	This
TRACE	TRACE[-]	Will display lines as they run	37
TRAP	TRAP LINENO	On error, computer goes to LINENO	38
TRUNC	TRUNC (A)	Whole number part of A	39
UINSTR	UINSTR(A$,B$[,C$])	As INSTR, but case independent	This
UNLOCK	UNLOCK FILE$	Opposite of LOCK	36
WHILE..WEND	WHILE COND..WEND	While condition COND met, code repeated	36

N.B. (1) Arguments is square brackets denote optional arguments
(2) The .. syntax indicates a block of program, perhaps split over several different lines

Mark Hutchinson's

RANDOM NOTES

Well, as promised I have given a list of BBS numbers to Les. This list gives you 167 telephone numbers, baud rates etc. in America to choose from. Please let us know how you got on. Oh yes, an SAE for the list would really be appreciated. If you come across any good public domain programs it would be nice to add those to the PAGE 6 library.

ATARI have been pushing some new models recently that you may have heard of, the TT, Folio and Stacy. But when did you last hear of the ATARI Transputer Workstation? Sales have been slow but steady and sometime in the new year ATARI will be bringing out a new version with 'go faster' chips. I have not heard anything official about the 8-bits though. However, one of our readers is busy trying to persuade me to upgrade my system to 320K, OS card etc. I wonder, does Santa know how good a boy I was this year?

I am not sure about my 8-bit's memory but it would sure come in handy for me! Hands up those who heard about a disk controller for the 8-bit that will allow you to run 1 MEG ST drives. Nice as this may be I would much prefer to work on the 8-bit disk format than try to unscramble an ST file using FAT! Did anyone get to see the G.O.S. cartridge? It sounds fun if you fancy a WIMP on the 8-bit. There is word of an American interface for ST drives that uses the parallel port, making things a lot faster. Still, copying a disk that is 760K in size could be time consuming.

Another interesting titbit that I was told concerned the 8:16 board that allows emulation of the PC as well as Commodore and Apple. All for $150! That would allow you to use Wordstar - if you are a masochist! Over here Simon Trew of Stevenage is supposed to have written a true 80 column device handler. How about it Simon, fancy giving us a review? Alan Norman from Hatfield, for one, would really enjoy it. I have to thank Gavin Moran for all this information and yes, I would like to see your system in action. I might even go ahead with the upgrades on my system.

In issue 41 I wrote about a five line program that was sent in to us and said it reminded me of a child's toy which I could not remember the name of. Lo and behold, Derek Thompson has a program published in the next issue called 'Spiro'. I believe the toy was a Fisher-Price production called 'Spirograph'. Peace of mind at last.

Recently I received a letter from a Mr. Thompson who took me to task over a paragraph about software houses. He would like to see 'Raiders of the Lost Ark' and 'The Hobbit' appear for the 8-bit. I am not too sure when the next reader survey will be taken, but it would be nice to have another question included; "What program would you dearly like to see for your 8-bit?"

I would like to thank those people who kindly took the time to write to me with solutions about the 130XE keyboard.One solution came from John Hurdle who sent a copy of an old Atari User Mailbag page. This describes the problem of corrosion as being caused by the 5V line feed for the function keys. The solution is to change a resistor and clean up the contacts. I will sort them all out and let you know how I got on.

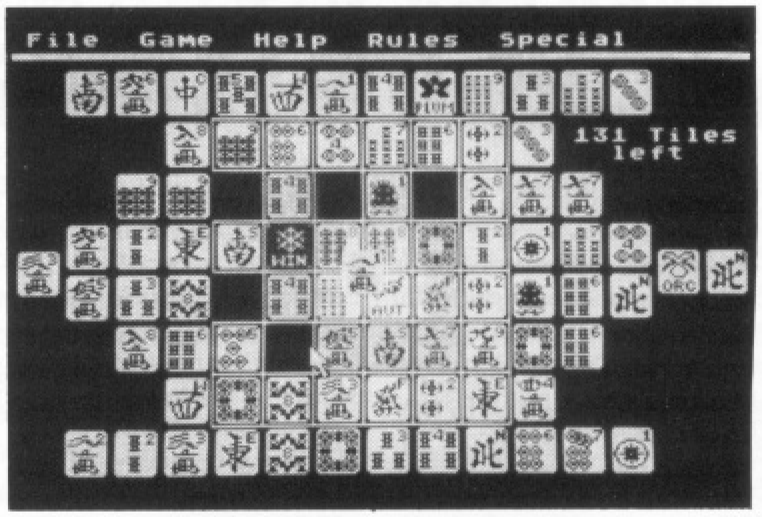
Arthur Morris told me that he thinks Edmund Blake of New Computer Express is not really such a bad chap. I did not know anything about this until I read it in PAGE 6. I wish I had read the article but then I never knew NCE existed. I will not get involved in this issue but it is nice to see comments about dubious firms. Please let us know if you come across any shady dealers.

Sometime soon I would like to write an article about word processing. If you would like to help me out I would appreciate any hints or tips about Atariwriter or STWriter. I will be explaining a lot of the jargon involved so Les might split this article into two parts. If so then perhaps hints and tips on other word processors would not go amiss. There are a lot of WP's being used now and I am sure that other readers would like some help. I often get asked about various printers but as I use only one (a Taxan Kaga P810) I cannot comment about others. I would be great if we could give you an up to date assessment of current printers but, as the models change so quickly, this would be a massive undertaking.

This Christmas I am going to put my feet up and forget all about computing for a while. Unfortunately the new year will see me spring cleaning the computer room and filing everything away. I keep doing this in dribs and drabs but somehow I think a concerted effort in January would not go amiss. I hope that you have a more pleasant holiday to look forward to.

There you have it, the last article written in 1989 and the first published in 1990. It has been an interesting time for me but, thanks to promotion and a career change, I have had far less time to spend at home with my computers than I would like. I found it all too easy to just load in a particular game and spend a few hours doing very little. That game was solitaire cards and as it takes some thinking to complete it is amazing how time passes. I hope that all our readers had an enjoyable year and I hope that they continue to support PAGE 6 (sorry, New Atari User - old habits die hard) next year. Have a nice time.

CLEVER PLAYER BEAT DRAGON



A new disk-based game from Activision? Well, not quite. SHANGHAI was actually produced several years ago but was not released in the UK. Ironically, it was manufactured in Britain and exported for exclusive sale on the Continent. You might never have seen it were it not for Callisto Computers, who have kindly imported it back again! The only slight drawback is that the inlay card is printed in German!

Shanghai is an ancient Chinese game of strategy, memory and luck. It requires a collection of 144 'Mah-Jong tiles which are arranged into a pile called the Dragon. The players take it in turns to remove tiles from the Dragon and the game ends when there are no remaining tiles or no legal moves. The Dragon is constructed from stacks of tiles up to five layers high. The players have an overhead viewpoint, but can distinguish the different layers by the colouring and borders of the tiles. A tile can only be removed if it's on top of a stack and has an unblocked path to the left or right. Each of the tiles has a symbol, and the object of the game is to remove pairs of tiles having symbols that match. If you need help, the computer can highlight all the legal moves.

Tiles are removed by 'clicking' an arrow shaped pointer over them, using either a joystick or ST mouse. The tiles are small but are very neatly drawn in the highest resolution graphics.

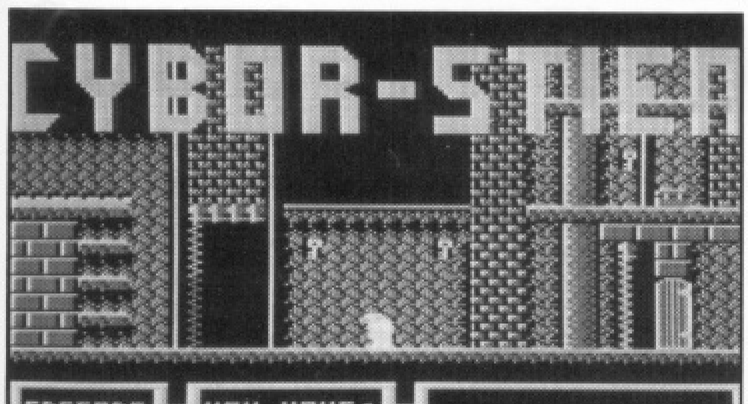
A generous helping of options are accessed by a series of clever pull-down menus which are also ideal for amazing your ST-owning friends with the power of the 8-bit! The 'file' menu includes a save game feature, although it didn't seem to work when I tried it. The 'game' menu allows the selection of four different playing modes for one up to any number of players. The most interesting mode is 'Challenge' where players compete to see who can find the most moves. Time limits from ten to sixty seconds are enforced and points are awarded for legal moves made within that limit.

Shanghai is, in my opinion, the best non-arcade game I've reviewed in this magazine and full marks must be awarded to Callisto for transforming another 'game you can't get' into one that you can, and at a very reasonable price too! Very highly recommended.

Title:	**SHANGHAI**
Publisher:	**Activision**
Price:	**£6.50 disk**
Players:	**Unlimited**
Loading:	**1.25 minutes**

Reviewed by Paul Rixon

ARMS, LEGS, ANYONE?



CYBOR-STIEN is another B.Ware release from the "Daz" programmers who were also responsible for Darg, which is reviewed elsewhere in this issue. The game is available on both cassette and disk, but you've got to buy directly from B.Bytes.

This time it appears that a mad Professor has got a wee bit carried away with his wacky experiments - and has taken to using the nearby villagers for ingredients! Unfortunately, he didn't ask them first and the remaining people of the village have infiltrated the Professor's castle and taken him hostage in protest. Much as you'd like to help rescue the Professor, it does seem a bit on the dangerous side for a mere hunchback servant called Gregor to deal with (I didn't write the plot!!) so instead you decide to embark on his last unfinished project - the Cybor-Stien monster. What you've got to do is collect all the various monster parts from the ghost infected depths of a dark, dingy and devilishly dangerous dungeon! (oh dear!)

Getting back to reality, what we have is basically a platform hopping, pixel scraping multi-screen arcade game, not unlike a dozen others I could mention. There are various problems to contend with as you search for the pieces of the Cybor-Stien. For a start, there are skeletons which pop up out of nowhere and are almost impossible to avoid. Then there are ghosts which are slightly more avoidable but just as annoying, plus laser barriers, locked doors and fire pits! The graphics aren't too bad although I've a feeling the author may be colour blind, and by all accounts, stone deaf too!

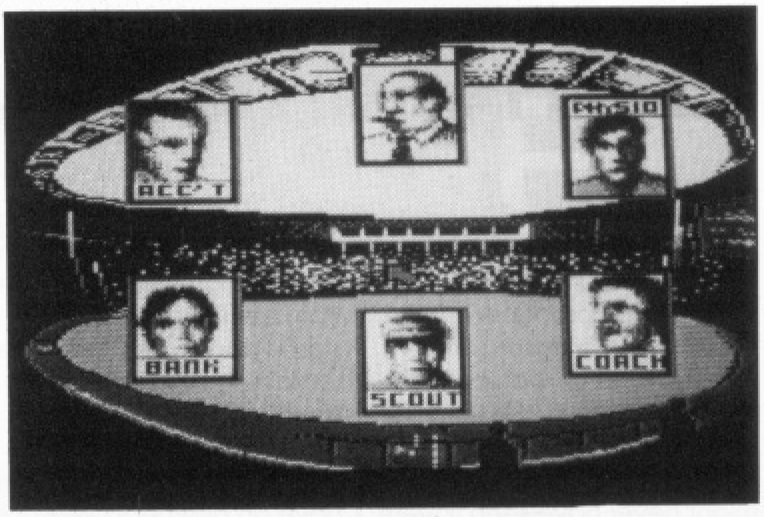
Cybor-Stien is an extremely frustrating game as you actually have very little control other whether your character survives, or not. There's no telling when a skeleton or ghost will appear and the lasers seem equally unpredictable. The only way out is to switch into 'cheat' mode, where you become immune to the effects of all nasties. Even then, you can still get stuck in a no-win situation! Having experienced the ending, I've certainly little incentive to bother with the rest of the game. Good luck to the villagers, that's what I say!

Coming soon, we're told, from B.Ware are the Mutoids, Return of the Mutoids III and Alien Brain Eaters. Uurghh! Watch this space if you dare!

Title:	**CYBOR-STIEN**
Publisher:	**B.Ware Software**
Price:	**£5.99 disk/cass**
Players:	**1**
Loading:	**1 minute (disk)**

Reviewed by Paul Rixon

TOP OF THE LEAGUE



It's described as 'The football game to beat all the others' - and let's face it, there have been an awful lot of others! But this one, Cognito tell us, is the 'ultimate' in football managerial games. So how does it differ from the rest?

Well, KENNY DALGLISH SOCCER MANAGER stands out by the fact that it relies entirely on the icon approach to player interaction. Right from the start you are faced with a series of symbols - some more obvious than others - and required to 'click' an arrow cursor over your chosen selection.

There are five choices on the main screen allowing you to enter the boardroom, proceed with the game, load or save matches and decide on the amount of information you want to see later on. You may just want to see the final scores or you can view the full-blown 'match highlights' with graphic goal replays plus details of substitutions and injuries as each match progresses.

In the club boardroom you can quiz the chairman, Physio, Coach, Scout, Bank Manager and Accountant for their thoughts on your progress. The principal options from the main playing screen allow you to view details of the forthcoming fixture and your current position in the league, check the positions and ability of your squad, sell unwanted players and proceed with the match. If you choose the latter option you are asked if you want to change the players' positions. If you do, an overhead view of the football pitch appears and you can place the ten players wherever you want them to go (the goalie doesn't get a choice, of course!). Depending on your earlier selection, you are next informed of the match result or presented with full highlights of the big event.

There are lots of icons to play with and Cognito advise you to adopt a 'click and find out' method of learning how to play. The instructions explain all the main options but they don't tell you everything. I haven't mentioned the sound, and that's because there isn't any - not a single beep! Perhaps an appropriate tune wouldn't have gone a miss in a 'full-priced' release. Still, overall it's a notably unique approach to a much exploited game concept and I think that anyone with an interest in football will find SOCCER MANAGER a worthwhile investment.

Title:	**KENNY DALGLISH SOCCER MANAGER**
Publisher:	**Cognito**
Price:	**£8.95 cass**
Players:	**1**
Loading:	**19 minutes (cass)**

Reviewed by Paul Rixon

ON THE THIRD STRIKE



Kixx is a relatively new label dealing exclusively in re-releases. This is good news for newer Atari owners as it means that they can now pick up some of the best US Gold hits at a fraction of the original cost. Accolade's HARDBALL is one such game which first appeared on the British market in 1986. Second time around, it remains one of the finest sports simulations in existence!

Hardball is a simulation of American baseball and it does help if you are already familiar with the rules as the instructions supplied are quite brief. The game opens with a selection screen where you can decide whether to play against the computer or a human opponent, either at home or as a visitor and with or without a designated hitter. From here you move on to the Manager's decision screen. This shows you the selected players for both teams with details of their positions and past performance. Below, there are various decision options such as substitutions and position exchanges.

Play begins with a screen depicting the pitcher, batter and umpire in excellent quality graphics. Underneath there's a status panel and, to the right, an inset plan of the entire pitch showing the positions of batters on their way around the field. Using the joystick controls displayed on-screen, the pitcher selects a type of pitch from eight possible choices. He then decides on the location of his pitch and the batter must try to determine a corresponding location of swing. The secret from the batter's point of view is to try and predict the type of pitch he's going to receive, and therefore whether he should strike or not. If he hits the ball (it can take several attempts!), the screen switches to a half-split view of the field, allowing joystick control of the fielders as they try to catch the batter 'out'. The batter can decide whether or not to stop at the various bases. Again, on-screen prompts show you the possible joystick responses.

The game is a delight to watch in the graphics department - the animation of the pitcher is superbly done. The visual effects are matched by several topical tunes which play at regular intervals and are interspersed with suitable sound effects of the nearby spectators.

Hardball is another classic that shouldn't be missing from any games collection. If it's not in yours, now's the time to make amends.

Title:	**HARDBALL**
Publisher:	**Kixx**
Price:	**£2.99**
Players:	**1/2**
Loading:	**16.5 minutes**

Reviewed by Paul Rixon

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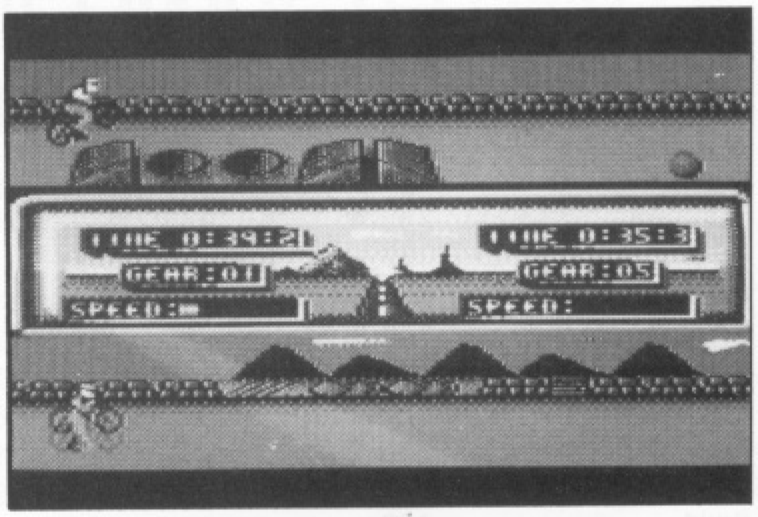
In the past, Alternative Software haven't been noted for producing particularly exceptional games. Now, it seems, they've suddenly upped their standards and produced a package that could well become a major hit in the budget league. The name of the game is PRO MOUNTAIN BIKE SIMULATOR and, as you might have guessed, it's a simulation of cross-country cycling.

The general idea is to guide your cyclist over a series of obstacles - logs, holes, rocks and swamps - without allowing him to fall off. You race against either a computer or human opponent and the winner is the first to reach the finishing post. Controlling the bike requires skill and practice as you have no fewer than eighteen gears to select via joystick and trigger presses. The trigger by itself makes your cyclist jump off his bike and you must then waggle the joystick - Decathlon style - to walk him past the rocks and logs. If you should forget, he flies spectacularly over the handlebars and ends up in a big heap!

The screen is split into three sections with the middle one housing the necessary status indicators for each player. Above and below this panel there are two independently scrolling windows giving each player their own individual view of the proceedings, from a side-on perspective. The graphics are, generally, quite well done. On the audio front there are two good tunes which liven up the opening screen and main game. Like most tunes, they do become a bit of a nuisance after a while and unfortunately, it doesn't appear that you can turn them off (no pleasing some people!).

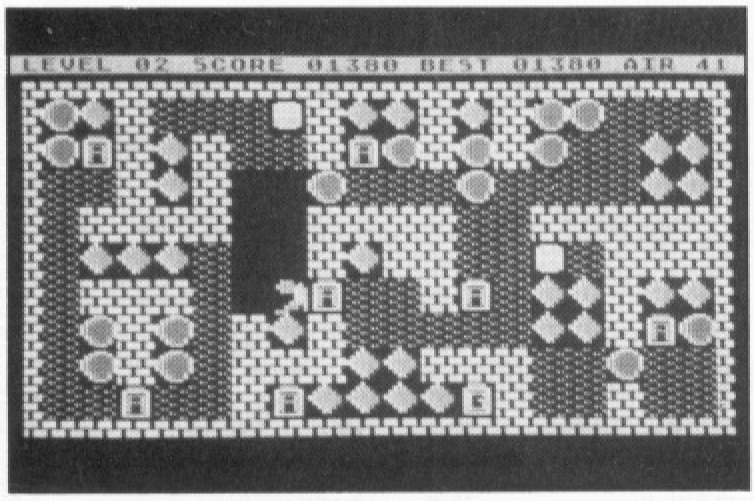
There are various options on the opening screen which you select by pointing an arrow cursor at a row of symbolic icons. 'Night mode' causes the display to almost totally black out, so you can't properly see the obstacles or position of the bike. There are two alternative courses to choose from but if you don't like those supplied you can design your own using the in-built course editor. Layouts can be constructed to be as simple - or challenging - as you like and saved to cassette for subsequent use.

Pro Mountain Bike Simulator seems to have lots of good features and I'm pleased that Alternative are continuing their 8-bit support with some good quality software. Let's hope there's a more to come.



Title: **PRO MOUNTAIN BIKE SIMULATOR**
Publisher: **Alternative Software**
Price: **£2.99 cassette**
Players: **1/2**
Loading: **14.5 mins**
Reviewed by Paul Rixon

SCOOPING UP CRYSTALS



You may recall that B.Bytes - the Hinkley-based computer dealer - recently decided to drop some of the inferior brands of micro in order to become an Atari specialist. Not content with stocking other companies' products, B.Bytes have their own software label and the good news is that there are several new releases lined up for the 8-bit.

Perhaps 'new' isn't quite the right word to use as far as DARG is concerned since it originally appeared in 1987 as a product of STV Software (where are they now?). Darg, the character, is a space alien who has crash landed on Earth and, quite naturally, is pretty keen to get back to where he came. Darg needs energy crystals to power his ship back into action and it's your job to help him collect them. Maybe you wouldn't have volunteered had you known that, by a remarkable piece of bad luck, they are all buried on the site of an Army ammunition dump!

The plot is a reasonable excuse for what turns out to be a fairly straightforward 'Boulderdash' spin-off. You control Darg - who can only be described as a very irritated florescent yellow tadpole - as he darts around each screen, scooping up the blue crystals. As in Boulderdash, each screen presents a particular logic problem that takes more than a second of thought to successfully conquer. You have to be quick though as a time limit is applied in the guise of an ever decreasing air supply. Darg can also get killed by falling rocks and exploding bombs and gas canisters. The trick is to use these to your advantage, so that you can get to those crystals that are seemingly out of reach.

There are twenty levels in all, each graphically similar but clearly defined and posing a unique and challenging problem. You can practice the screens individually if you like since B.Ware - as if to put the Tipster out of a job - have kindly printed a method of cheating with the instructions! The sound isn't too special, but it's considerably better than some of the other games I've come across recently.

Don't expect to find Darg at your local computer store as you can only buy it directly from B.Bytes - on disk or, by special request, cassette. Reasonable graphics, acceptable sound and a popular theme - not a bad little game really!

Title: **DARG**
Publisher: **B.Ware Software**
Price: **£5.99 disk/cass**
Players: **1**
Loading: **1 minute (disk)**
Reviewed by Paul Rixon

HOT ROD RAIDER

Hot Rod Raider is a machine code driving game for 1 or 2 players requiring 1 or 2 joysticks as appropriate. As Player 1 you control the white car by using a joystick inserted into Port 1 and attempt to amass points by disposing of as many enemy vehicles as possible before being destroyed yourself. You can choose between firing bullets, rockets or dropping oil on the road. To fire a bullet press the joystick trigger. To fire a rocket push the joystick forward as you press the trigger. To drop oil pull back on the joystick as you fire. You are limited to 20 rockets and 10 oil drops. You have an unlimited supply of bullets. Your lives are not unlimited - you only have 1 - so make the most of it!

To accelerate push the joystick forward and to decelerate pull it back. Move it from side to side to steer.

In the 1 player game the computer controls the enemy vehicles. In the 2 player game Player 2 controls them by using a joystick inserted in port 2. Pressing the trigger fires the weapon according to the vehicle on screen. The joystick controls speed and steering like Player 1 but Player 2 only has 2 speeds whereas player 1 has 3.

On loading the title screen displays. If no game is selected after a minute or so the Demonstration Mode comes into play with the computer showing game play. To select a 1 player game press joystick trigger 1 whilst in the Title or Demonstration Modes. For a 2 player game press joystick trigger 2. Play commences immediately.

Happy firing - and mind the lamp posts!

TYPING IT IN

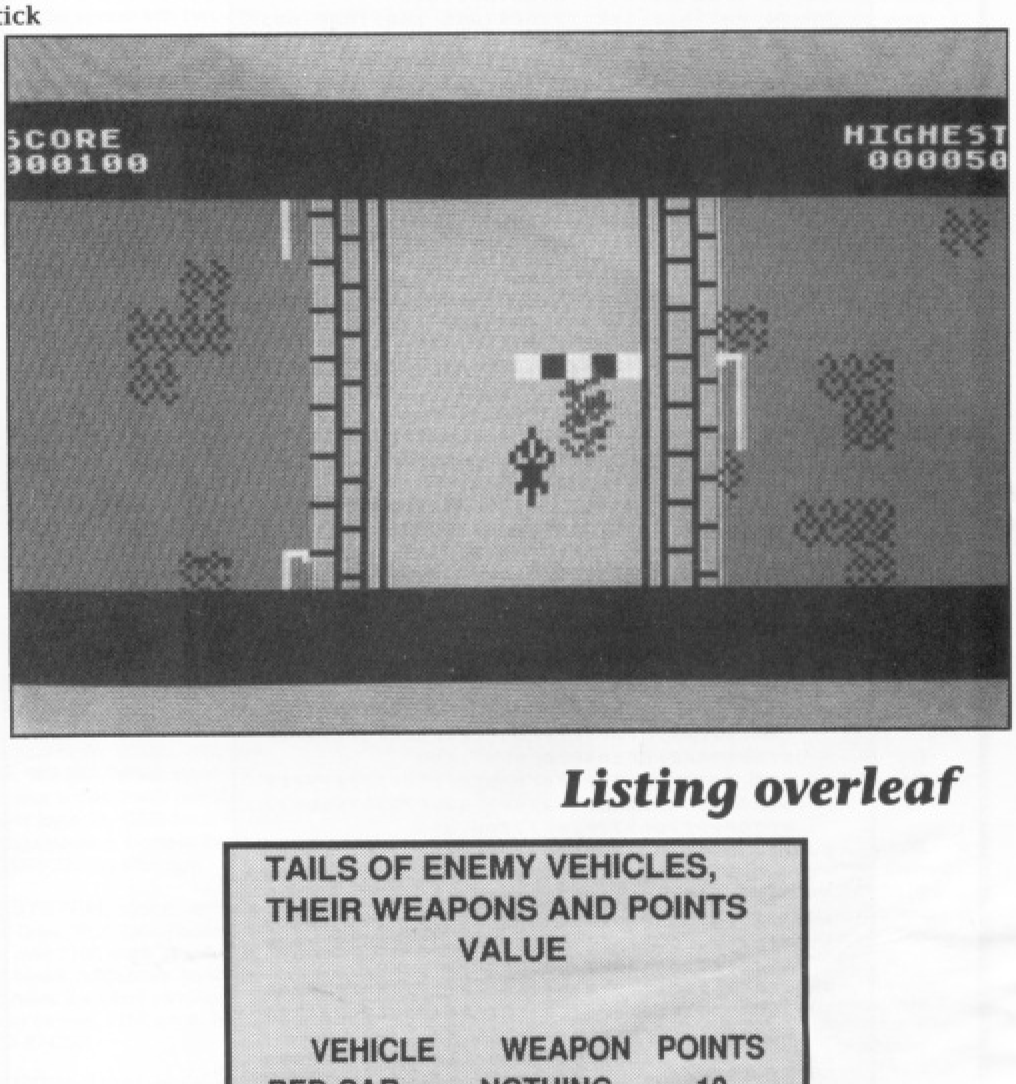
Cassette and disk users should type in Listing 1, SAVE or CSAVE a copy, then RUN the program. The program will check each line of data and inform you of any errors. Correct any errors and RUN the program again until all errors are eliminated. When this is done answer the cassette/disk questions accordingly to create a boot tape or binary disk file.

To load the boot tape remove all cartridges then turn on the computer while holding down the START key (XL owners should hold down OPTION as well). Press RETURN and the tape will load and run automatically.

Disk users should type in Listing 2 and save it on the same disk as the binary file created by Listing 1. RUN the Listing 2 program with the disk in the drive and the game will load and run automatically.

Note for disk users: If any other programs have been used prior to Listing 2 being loaded it is recommended that the computer be turned off and on again before Listing 2 is loaded and run to ensure that the game isn't corrupted by any data left in memory.

BILL HALSALL'S ALL ACTION CAR CHASE GAME FOR ONE OR TWO PLAYERS



Listing overleaf

TAILS OF ENEMY VEHICLES, THEIR WEAPONS AND POINTS VALUE

VEHICLE	WEAPON	POINTS
RED CAR	NOTHING	10
BLUE CAR	GUNS	20
YELLOWCAR	OIL	30
MOTOR BIKE	ROCKETS	40
TRUCK	GRENADES	50

HOT ROD RAIDER

```
CS 1 REM ##################################
PG 2 REM #          HOT ROD RAIDER        #
LT 3 REM #               by               #
LB 4 REM #          Bill Halsall          #
MG 5 REM #                                #
SH 6 REM # ------------------------------ #
LT 7 REM # NEW ATARI USER  February 90    #
CZ 8 REM ##################################
NO 9 REM
UF 40 REM  BOOT TAPE/OBJECT CODE FILE
           MAKER - BASED ON PROGRAM
           FROM ANALOG MAGAZINE
BF 42 REM
SR 44 DIM DAT$(100),HEX(22):RESTORE 46:FO
   R X=0 TO 22:READ N:HEX(X)=N:NEXT X:PAS
   S=0:TOTAL=0:TRAP 62:? "CHECKING DATA"
CN 45 LINE=99
EL 46 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,
   0,0,10,11,12,13,14,15
BW 48 LINE=LINE+1:? LINE:READ DAT$:IF LEN
   (DAT$)<>90 THEN 76
BL 50 DATLIN=PEEK(183)+PEEK(184)*256:IF D
   ATLIN<>LINE THEN ? "MISSING";CHR$(253)
   :END
MA 52 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
   X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
   EX(D1)*16+HEX(D2)
GR 54 IF PASS THEN PUT #1,BYTE:NEXT X:REA
   D CHKSUM:GOTO 48
BO 56 TOTAL=TOTAL+BYTE:IF TOTAL>999 THEN
   TOTAL=TOTAL-1000
TS 58 NEXT X:READ CHKSUM:IF TOTAL<>CHKSUM
    THEN 76
VQ 60 GOTO 48
TQ 62 IF PEEK(195)<>6 THEN ? "ERROR ";PEE
   K(195);CHR$(253):END
SD 64 IF PASS THEN FOR X=1 TO 43:PUT #1,0
   :NEXT X:CLOSE #1:END
PF 66 ? "(D)ISC OR (T)APE":GOSUB 80:IF K=
   ASC("D") THEN 70
RD 68 ? "READY CASSETTE AND PRESS RETURN"
   :OPEN #1,8,128,"C:":GOTO 74
IF 70 ? "READY DISC AND PRESS RETURN":GOS
   UB 80:IF K<>155 THEN 70
QV 72 OPEN #1,8,0,"D:HOTROD.OBJ"
HW 74 PASS=1:LINE=99:RESTORE 100:TRAP 62:
   GOTO 48
PT 76 ? "BAD DATA";CHR$(253):END
ZM 79 REM ***GET KEY ROUTINE***
GO 80 CLOSE #1:OPEN #1,4,0,"K:":GET #1,K:
   CLOSE #1:RETURN
AL 100 DATA 001A0020282 0A9008D2F02A93C8D0
   2D3A9008DE702850EA9388DE802850FA928850
   AA920850B18604C6B220000,544
WP 101 DATA 00000070707042000742280074250 0
   7C2000765C0152525252525252585420007427
   80742A00742000741302048,923
XY 102 DATA A5CA490C8D0AD48D18D085CA68840A
   5B1F05EA90085B1C6B2A5B22903858 20A0A8D0
   5D4C90CD049AD402038E928,316
EW 103 DATA 8D40208003CE4120AD4120C910D03
   4AD4020C928D02DA91D8D4120A9E88D4020AD0
   AD21011A2048DD5219DAC13,994
WJ 104 DATA 9D9417CA10F44CCA20A900A2059DA
   8139D9317CAD0F7A90485CAA9598D0002A9208
   D01024C62E40000000007C,541
IL 105 DATA 7CFEFEC67C7C7CFEC6FE7C0000000
   01010286CAA927C38387C5410100000003C7E7
   E5A24FFFFFFFFFFFFFFFFFF,278
IZ 106 DATA FF00287CFEFEC67C7CFEFEC67C000
   00000020707828304010001010383838282 00
   010100000000000000241E4C,367
RH 107 DATA 70E22E5F2A748146368852280018 3
   C180000000000000A214A142A1C1800000000000
   000000FF00000000000000,157
ZU 108 DATA C0C0C0C0FFC0C0C0C3C3C3C3C3C3C
   3C3FFFFFFFFFFFFFFFFAABEFEFEFEFEFEFEFEF
   EFEFEFEFEFEFEAABEBFBFBF,205
AJ 109 DATA BFBFBFBFBFBFBFBFBFBFBFFFFFFFFF
   F0000000AAAAAAAA00000000DF75DD7FDDF77
   DF7DF77F7DD777FDDF777DD,398
SJ 110 DATA 7D77DD77D77DDFF7DD77FD77DFF7C
   20C00C6080A090A090A33232F3225000000000
   00028292728253334101010,2
AH 111 DATA 101010000000000000010101010101
   0202F340000322F24003700282 12C33212C2C0
   032212924253200000000000,9
NM 112 DATA 1119181500002721 2D25002F36253
   200000010203474 1E00F25E5E125E120201040
   004FFFF01FF010403060206,43
AT 113 DATA 0101010201010101010206100008 2
   81008000000F43E04003EF4001064642810026
   4D8A2008D2F028D00E09D00,285
JR 114 DATA 008D00E19D00098D00E29D0000A8D0
   0E39D0008E8D0E58D58219D0008E8E078D0F5A
   9088DF402A2008A9D0007E8,472
GV 115 DATA D0FA8DDA219D28078DE3219D47078
   DEC219D50078DF5219D6F078DFE219D78078D0
   7229D97078D10229DA0078D,759
OE 116 DATA 19229DBF078D22229DD807E8E009D
   0C5A90C8D07D4A9028D1DD0A900A20D9DFFCFC
   AD0FAA9048D6F02A2048DD0,383
OW 117 DATA 219DC402CA10F720A423A984A0009
   1C0C8D0FBE6C1A6C1E01ED0F320A423A98B85C
   2A205A5C2AC0AD291C0C891,877
AT 118 DATA C0CAD0F3E6C2A5C2C98FD0E9E6C1A
   5C1C91ED0DDA90085C3A00F20B923C8C019D0F
   8A90185C3A00C20B923A01A,636
WB 119 DATA 20B923E6C3A00D20B923A01820B92
   3E6C3A00E20B923A01920B923A98585C3A01C2
   0CB23E6C3A04420CB23E6C3,901
WV 120 DATA A0AB20CB23E6C3A0D320CB23A2008
   D00109DC01D8D00119DC01EE8D0F14CE323A90
   085C0A91085C160A5C01869,504
SR 121 DATA 2885C09002E6C16020A423A200A5C
   391C020AD23E8E059D0F46020A423A90B85C2A
   5C391C0A20820AD23CAD0FA,462
OE 122 DATA C6C2D0F060A9308D3002A9208D310
   2A92A8D2F02A90085B1A068A220A907205CE4A
   9C08D0ED4A9008D08D2A903,493
DP 123 DATA 8D0FD2AD0F06F030A9C88D3420A97
   88D4E20A9A08D5120A200388D5007FD7207F00
   490148005E8E006D0EEA200,585
NZ 124 DATA BD50079D7207E8E006D0F5A900A20
   F95B09D0006CA10F8A900A2079D00D2CA10FAA
   90385CB85B0A90785B2A914,20
WW 125 DATA 85C5A90A85C6A93F85C7A900AA9D0
   00E9D000FE8D0F7A000A9F48513A513F00FAD8
   402F009AD8502F0034C0124,305
TV 126 DATA C8C004C4A9008D34208D4E208D512
   0A910A2059D5007CA10FAA9E88D4020A91D8D4
   120A20FBD10219D3C0ECA10,934
MN 127 DATA F7A90C8DC002A97885B38D000D0A90
   0A20786C99D1206CA10FA20E1248D1ED04C102
   7A900A2009D800EE810FAE6,130
BS 128 DATA C9206B25A9108D1ED060AD910ED00
   6ADEF0ED0016020E12460A2008D810E9D800EE
   8E07FD0F5C68720F62460A2,615
PY 129 DATA 7FCABD800E9D810EE000D0F5E6872
   0F62460A2008D010F9D000FE8E07FD0F5C6886
   0A27FCABD000F9D010FE000,220
TM 130 DATA D0F5E68860A2008D810F9D800FE8E
   07FD0F5C68960A27FCABD800F9D810FE000D0F
   5E68960A6C9E008D00720B8,835
AT 131 DATA 25A20085C9BD120685BDAAA970858
   48D01D0A5CB187D3F2285C88D10061869018D1
   106BD30228DC102BD352285,437
UP 132 DATA 87BD2B22A8A6B7B9E020F0079D800
   EE8C8D0F4A90085BB60A000AD0AD22907AAFE1
   206C8C004D0F2A200BD1206,129
TH 133 DATA 29039D1206E8E008D0F3AD0AD2290
   7AAA9049D120660A5BAD028AD78022904D0032
   01026AD78022908D003201D,182
LI 134 DATA 26AD78022901D003202A26AD78022
   902D00320332660A6B3E030F006CA86B38E00D
   060A6B3E0C8F006E886B38E,172
CK 135 DATA 00D060A5C7C910F002C6C760A5C7C
   93FF002E6C760A5BBD028AD79022904D003206
   926AD79022908D003207626,258
RM 136 DATA AD79022901D003208326AD7902290
   2D003208D2660A6B4E030F006CA86B48E01D06
   0A6B4E0C8F006E886B48E01,397
KB 137 DATA D060A5C8CD1006F002C6C860A5C8C
   D1106F002E6C860A900AA9D800FE810FAAA9D0
   106E8E004D0F88D07D28D06,282
SA 138 DATA D285BF60A900AA9D000FE810FA8D0
   5068D06068D07068D05D28D04D285BE60AD910
   FD006ADEF0FD00160209726,10
LU 139 DATA 60AD180FD006AD680FD0016020B22
   660A5C4F009A4BDC820F92688D0FA60A205CAF
   E5007BD5007C91AD009A910,260
UL 140 DATA 9D5007E000D0EC60A9018D1C02A5C
   4D00BAD84022D8502D0034C0E24AD0F06F0034
   C0E24A5BB05BAD07CAD0C06,642
AA 141 DATA D077AD0CD0F0722902F06EA6BDAD0
   AD229031D49228D0E06AD0AD229031D4E228D0
   D06A9068D0C06A9648D00D2,890
VQ 142 DATA A9658D02D2A9AA8D01D28D03D2A5B
   70A300F2005252005252005252005254C8F272
   018252018252018252018 25,905
HQ 143 DATA A5B338E5B4900CA90038ED0E068D0
   E064CAB27A90038ED0D068D0D068D1ED0A5B8D
   068AD05D02903D03FAD0DD0,578
GV 144 DATA 2904F05AA5BCC905F006C906F01DD
   02120B226AD0AD21046290218 69FF8D0E06A91
   88D0B068D1ED04C1A2820B2,872
SJ 145 DATA 264CF827A9648D09068D1ED04C1A2
   820EB26A92085B88D1ED0A9008D09068D0B06A
   000A6B7B9382 19D800EE8C8,421
VJ 146 DATA C010D0F4A5BAD079AD04D02903D05
   6AD0CD02908F06BA5BDC901F00AC902F021C90
   3F028D02C209726AD0AD210,921
FM 147 DATA 5329021869FF8D0D06A9188D0A068
   D1ED04C9728A9648D08068D1ED04C972820972
   64C7828AD0406C910300 68D,712
GZ 148 DATA 1ED04C97282097268D1ED0A9C885B
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continued on page 48

contact ... contact ... contact ... contact

FOR SALE

XE SYSTEM: 130XE, 1050 with U.S.Doubler, 410, Touch Tablet, Replay, joysticks, paddles, keypads, 65 disks, tapes & ROMs, 135 mags, De Re Atari, Rev. Mapping The Atari, 400/800 manual, other books, disk boxes. Offers over £275. Also Acorn Electron system, £50 o.n.o. Tel: 0332-842547 after 4pm

XL SYSTEM: 800XL, 1050 disk drive, 410 cassette recorder, 2 joysticks, over £300 worth of software, including Touch Tablet with Atari Artist, Assembler Editor, F15 Strike Eagle, Silent Service, etc. All leads, manuals and books including Programming The 6502 and Atari Sound & Graphics. Atari User and Page 6 magazines, all games software boxed, in excellent condition. All for £170 o.n.o. Phone: Melton Mowbray (0664)-66887 after 4pm

XL SYSTEM: 800XL, 2x1050 drives (1 with Happy board), over 100 disks (all boxed), Basic language book, manuals, magazines, 2 joysticks, £200 o.n.o. (Will not split or deliver). Phone: Bradford (0274)-833923 after 6pm and ask for Lee

XE SYSTEM: 65XE, XC12 Datacorder, joystick, manual and software including Trivial Pursuit, Solo Flight, etc, £50.00. Also 800XL and XC12 Datacorder, in good working order but no software, hence £40.00. Touch Tablet and cartridge-based graphics program, £15.00. Microsoft Basic on disk with comprehensive manual, £5.00. Will post all. Tel: Bolton (0204)-796489

XE SYSTEM: 65XE, XC12 cassette, CX40 joystick, 71 games on cassette, all manuals and leads, still boxed and in excellent condition, £100. Also Page 6 issues 21-40 (missing numbers 24 & 35), so 18 issues in binders, £15.00. No splits. Write to: 151 High View North, Wallsend, Newcastle-upon-Tyne, Tyne & Wear, NE28 9LG

PRINTERS: Brother 1709 9-pin, 132 column NLQ with spare head and ribbon, cost £495, accept £300 o.n.o. Also Brother 1724 24-pin, 132 column LQ, takes font cards, cost £695 new, accept £500 o.n.o. BOTH Epson compatible and work well with all 8-bit software. Phone Dave on: 0532-717712 any time

DISK DRIVE: 1050 - Buy this for £130.00 and get FREE my 800XL, 1010 data recorder, 2 joysticks and software on disk, cassette and cartridge, plus all manuals. Tel: 0865-821110

XL SYSTEM: 800XL, 1010 data recorder, joystick, £100 worth of games. Sell for £100. Tel: 0904-702416

XL SYSTEM: 800XL and 1010 tape recorder, with software, £50. 1050 Disk Drive with loads of software, £100. 1029 dot matrix Printer with AtariWriter word processor on cartridge, paper and spare ribbons, £100. All with original manuals, leads, boxes and in perfect condition. Tel: 0352-58831 after 4pm

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette, joystick, 110 disks, 20 cassettes, 6 cartridges, programming books, Analog and Atari User magazines + others. £85.00 o.n.o. Tel: 0705-815672 (Portsmouth)

XE SYSTEM: 130XE, 1050 drive with Hyper chip, tape deck with some tape software, Mini Office II, Printshop and Companion, Icons, lots of games (Adventures, Simulators, Utilities), Mags including Page 6, Monitor, Atari User, Machine Language For Beginners, 2nd Book of Machine Language, Disks + 2 disk boxes, plus loads more! £400. Phone Alex Busby (Mon-Fri) after 5pm on: 0980-53125

ST SYSTEM: 520ST and mouse, 2 years old, little used and still boxed, with manuals, music composing and sequencing software, plus games, £270 o.n.o. Tel: 0842-860338 or FAX: 0842-860083

XE SYSTEM: Boxed 130XE computer, XC12 cassette, Graphix GT printer interface, disk software including Visicalc, Turbo Basic, Mini Office II plus blank floppies. Also Missile Command cartridge. Will split and offers considered. Call: 0860-282-379 any time

CUSTOMIZED 800XL: Fitted with tripler board, Ultimon (a very powerful on-board/monitor/debugger/editor), and Superchip (memory dump facility) with cartridge back-up facilities and cartridge emulator, software-based freezer, 1050 disk drive, 1010 cassette recorder and loads of excellent software, books and magazines. Everything is fully manualled and easy to use, £350 o.n.o. Phone William on: 041-779-1162 after 6pm

XE SYSTEM: 130XE boxed, Xetec programmable printer interface (use with any parallel printer), De Re Atari in U.S. style three-ring binder and Mapping The Atari. Also software for sale and a number of mags - mostly Atari User but includes some Antic, Analog and a few other others. All hardware/software supplied with relevant leads, power supply and documentation. Reasonable offers accepted on anything, buyer pays postage or collects or if you buy the lot I will deliver in 50 mile radius of Cardiff. No time wasters. Phone Andrew on Pontypridd (0443)-405564 after 2.30pm

XE SYSTEM: 130XE, 2x1050 disk drives (one with IS plate), 1010 cassette, Gremlin grabber, Syncalc, Mini Office II, loads of software and accessories, all as new, £300 o.n.o. Phone Paul: 0268-414108

INTERFACES: Atari XL Serial interface plus comms software, £20.00 (works with standard modem). Parallel interface, £20.00 (runs standard printers), or BOTH for £30.00. Tel: 041-954-4819

XL SYSTEM: 800XL plus spare, 1050 disk drive, 1010 tape deck, manuals, all boxed, plus over £600 software on ROM, disk and tape. Two remote joysticks, £250 o.n.o. Tel: 0543-77206 (Evenings/ weekends)

PRINTER/PLOTTER: 1020 model in excellent condition, three sets of pens and original packing, £60.00. Tel: 01-574-6249 (Southall, London)

XL SYSTEM: 800XL, 1050 Drive, 1010 data recorder, CX40 joystick, all boxed and in excellent condition, 1029 printer, software including Mini Office II, Basic Tutor Pack, Draconus, Joe Blade, Red max + many others, Atari User mags, £270. (No splits). Tel: Watford 835775

XL SYSTEM: 800XL, 1010 recorder, dust cover, paddles, over £300 worth of software on tape, 3 cartridges, £150. Tel: 0737-243597 (Reigate) after 6pm. Buyer collects

XL SYSTEM: 800XL, 1050 disk drive, 1010 tape deck, Philips green screen monitor, Touch Tablet, printer interface plus many disks/mags/books, only £175. Phone: 01-304-6136

XL SYSTEM: 800XL, XF551 drive (double sided) with Mydos 2.X (allows over 64000 sectors on one disk!), DOS 2.5, XC12 cassette, loads of software on disk including Wishbringer, Alternate Reality, Draconus, etc., Transdisk IV utility, some mags and books, Cheetah 125+ joystick, all v.g.c. Offers over £200. Tel: 051-639-1141 (4pm - 6pm)

GRAPHICS UTILITIES: Atari touch tablet system with pen, Atari Artist cartridge, DOS disks and manuals. All boxed and in excellent condition, only £25.00. Also Print Shop master program with graphics disks 1 & 2, complete with manuals (unused). Boxed and in excellent condition, only £13.00. Tel: Bidford-on-avon (0789) 772185 after 5pm

8-BIT BARGAINS: 850 Interface + CP80 Printer, £135 o.n.o., Assembler Editor cartridge + How To Program 6502 + The Atari Assembler + 6502 Assembly Language, £15. Software (All disk): Paint, The Next Stop, Tutorials, Home Filing Manager, Preppie, Choplifter, Wizard & The Princess, Archon, Ulysses, Crossfire. Books: Technical Reference Notes, Your Atari Computer, Mapping The Atari, Basic Exercises, 34 issues Antic/Analog - Offers To: 0925-828914 (Warrington)

XE SYSTEM: 65XE computer, XC12 recorder, joystick, £40 worth of games, all in excellent condition, £70.00 o.n.o. Tel: Folkestone (0303)-42378

XL SYSTEM: 800XL, 1050 disk drive, OKI 82A Printer, cupid interface plus software with remote control joysticks, £220 o.n.o. PLUS postage/packing. Contact: Peter on 0992-763733 after 5pm

XE SYSTEM: 130XE, XF551 Disk Drive, XCII Tape Recorder plus over £100 worth of software with books, magazines, joysticks and more. Excellent condition, boxed as new, £250 o.n.o. Tel: 0252-874232

PRINTER: 1027 Letter quality in 'as new' condition, complete with manual, leads and ink rollers, £75.00. Tel: 0795-842208

PRINTER: 1029 dot matrix, 11 months old, boxed complete with leads, manual, Mini Office II, 10-Print, Swift Spreadsheet, spare ribbon, nearly-full box of A4 paper, £100 o.n.o. Buyer Collects. Tel: Len (Coventry) 0203-362588

XL SYSTEM: 800XL, 1050 drive, boxed with manuals, 1020 colour printer, trackball, custom made extension plug in full keyboard with numeric keypad, lots of quality software, assembler cartridge, utilities and games including Flight Simulator II. Mapping The Atari book, £175. Phone: 0234-720892 (Bedford) Evenings

8-BIT BARGAINS: Technical Reference Notes, £10; Printer interface, £15; Mapping The Atari (old version), £5; Mini Office II, £10; Print Shop, £10; Guild Of Thieves, The Pawn, Mercenary, Solo Flight, Leaderboard, Tomahawk, Autoduel, Colossus Chess, Koronis Rift - all original discs, £5 each. Also issues 2 - 25 of Page 6 (minus No.18) in binders on offer for best price. Phone: (Greenford) 01-422-9099

XL SYSTEM: 800XL, 1050 Disk Drive, joystick, Brother HR5 Printer + some games and other programs on disk. Also a few mags. Buyer will need a printer interface, therefore only £150 the lot. Phone Ron on: 0440-63002

PRINTER: 1027 LQ in excellent condition, complete with leads, ink rollers and Atari Writer disk, £70 no offers. Also 'Mapping The Atari' - one copy only, in good condition, £10.00 no offers. Collection or postage to be negotiated. Telephone: 0384-52282

XL SYSTEM: 800XL, 1050 Disk Drive, 1010 tape recorder and 850 interface. Home Filing Manager, The Pay-Off, Seven Cities Of Gold, Textpro word processor, Turbo Basic and other disks. Basic Reference Manual, Inside Atari Basic, Compute!'s Third Book Of Atari, Mapping The Atari, Compute!'s First Book Of Atari Graphics, Machine Language For Beginners, Assembly Language Programming for the Atari Computers and 60+ Page 6 and Atari User magazines, £200. Phone: 061-764-9595 evenings or weekends

XL SYSTEM: 800XL, 1050 disk drive + 'lazer chip', 1010 tape deck with approx. 20 games on tape, 2 joysticks, extension lead, 5 blank disks, 2 lockable disk boxes + over 80 games disks featuring titles galore from 1979-89 (some rare), 9 utility disks including Turbo I & II, U.S. Alpha, Disk Wizard II, DOS 2.5 & 3.0, selling to upgrade to ST, £250 o.n.o. Contact Richard at: 133 Cottingly Heights, Cottingly, Leeds LS11 0JN

ST SYSTEM: 520STFM with both 1 Meg internal and 1 Meg external disk drives, mouse, mouse mat, lockable disk box with lots of software, including games, word processing, databases, etc. All in immaculate condition, plus manuals, joystick and masses of magazines, £350. Ring: 0342-(East Grinstead)-327072

XL SYSTEM: 800XL, 1050 disk drive and Panasonic KXP-1081 printer, all complete with dust covers and manuals, two joysticks, loads of software on disk and cartridge, plenty of books and magazines, all worth over £700 and in excellent condition. Will not split, buyer to collect, £350 o.n.o. Phone: 0296-432494 after 6pm

WANTED

XF551 DRIVE: We need one of these beasts to help with readers enquiries but they are non-existent at the moment. Anyone got one they want to sell? Please ring Les or Sandy at PAGE 6. The number is 0785 213928

ANCIENT 8-BIT UTILITIES: DOS MOD (Eclipse), DISKED (Amulet), BASIC VIEW (APX), BASIC DEBUGGER (MMG), BASIC/XA (APX), DISDUP (IJG) and INSOMNIA (APX). Sale or swap? Ring Kevin on: 0224 323335

DISK DRIVE: 1050 in good working condition. Any reasonable price paid. Ring Pat on: 01-739 -0279

SOUND SOFTWARE: Can anyone help? Has anyone got an up and running disk copy of Sound Synthesiser from Atari User (April 1986). I will supply a disk. Phone: 01-570-0639 after 5:30pm weekdays (ask for Richard)

DISK DRIVE: 1050, must be £35 or less and in good working order. If you have any offers then write to: A.Marsh, 43 Craufurd Green, Shorncliffe, Folkestone, Kent CT20 3LS. Tel: 0303-40669 after 5:00pm

LEADERBOARD: Has anybody got a copy of this game on cassette that they would be willing to sell? Phone: 0895-35115 (any time) or write to: Mark Hiriart, 17 Derby Road, Uxbridge, Middx. UB8 2NB

DISK DRIVE: Atari 1050 in the West Kent/East Sussex area. Must be in good condition, will pay reasonable price. Phone: Tonbridge Wells (0892)-39993 between 6pm and 9pm weekdays

PRINTER MANUAL: For Panasonic KX-P1081. Reasonable price paid. Phone: 0246-236122 after 6pm

WRITER'S TOOL CARTRIDGE: By OSS and must have manuals, reasonable cost. Write to: James Cutler, 44 Water Street, Great Harwood, Lancs. BB6 7QR

JET SET WILLY: For XE/XL machines. Will pay £1.00. Contact Chris on: Felixstowe 270295 (any evening except Monday) or write to: 1 Chatsworth Crescent, Trimley St. Mary, Ipswich, IP10 0TE

TURBO BASIC: On cassette if possible. Will pay good price. Write to: Allan Watson, 95 Braidwood Place, Linwood, Paisley, PA3 3SW

MORE CONTACT OVERLEAF

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

HOT ROD RAIDER

```
   A85B08D1ED0A2008E0A068E0806BD38219D3C0
   EE8E010D0F5AD0506F01A0A,563
AO 149 DATA 290F8D04D28D05D2202B25202B25C
   E0506D00320B22620DC26AD0606F0154A8D04D
   2A90C8D05D2202B25202B25,156
YB 150 DATA EE060620DC26AD0106F01A0A290F8
   D06D28D07D2204B25204B25CE0106D00320972
   620CD26AD0306F0124A8D06,792
ER 151 DATA D2A90C8D07D2204B25CE030620CD2
   6AD0406F040C90FF005301E4C3D29A200BD800
   FD006E810F84C3D29A000B9,106
IK 152 DATA 50219D800FE8C8C008D0F4A93E8D1
   5D0AD04068D06D28D07D2205B25CE0406D0032
   0972620CD26A5B0F005C6B0,145
ED 153 DATA 4CD529A5C74A4A4A4A85B085CB858
   1A5BBF00920182520F6244C7A29A5C74A4A4A4
   A38E5C8F011B00920182520,49
PW 154 DATA F6244C892920052520F624A5BBF01
   64A8D03D2A92038E5BB8D02D28D13D0C6BBD00
   320E124AD0706F014A9068D,60
RI 155 DATA 00D28D01D2203B2520DC262038252
   0DC26AD0206F014A9068D02D28D03D2205B252
   0CD26205B2520CD26AD0C06,842
PG 156 DATA F027A5B3186D0D0685B38D00D0A5B
   4186D0E0685B48D01D0CE0C06D00C8D00D28D0
   2D28D01D28D03D2AD0806F0,720
YH 157 DATA 18AD0AD229071869FC8D00D21865B
   385B38D00D0A90A8D01D2CE0806AD0906F018A
   D0AD229071869FC8D02D218,290
IJ 158 DATA 65B485B48D01D0A90A8D03D2CE090
   6AD0A06F0148D01D2A5B3186D0D0685B38D00D
   08D00D2CE0A06AD0B06F014,969
DK 159 DATA 8D03D2A5B4186D0E0685B48D01D08
   D02D2CE0B06A5C4F00720E325A900854DA5BAD
   005EAEA203C2620382CEAF0,111
GV 160 DATA 5BA5BBD057A5BEF02AA5B438E9063
   8E5B5B049A5B418690638E5B5903FA96018690
   938E5B5B00620692 64CCD2A,543
VK 161 DATA 2076264CCD2AA5BAD025A5B438E5B
   390EF4CB32AA5BFD017A5B438E90338E5B3B00
   DA5B418690338E5B390034C,180
TR 162 DATA F52AA5BBD036A5BFD032AD0502D02
   DA5B485B68D03D0A6BDF022BD63229D0006BD5
   B228DC302BD5322A8A6B786,991
QQ 163 DATA B986BFB92021F0079D800FE8C8D0F
   4A5C405BA05BBD025A5B338E97490062010264
   C3A2B201D26A5BED011A92C,225
JH 164 DATA 38E5B7B02EA95438E5B790344C662
   BA5BE05BA0D8402D057AD78022901F00EAD780
   22902F014A90585BC4C842B,976
FX 165 DATA A5C5F0F5C6C5A90685BC4C842BA5C
   6F0E8C6C6A90785BCA5B385BE85B58D02D0A6B
   CBD63229D00068D5B228DC2,513
OI 166 DATA 02BD5322A8A24006B8B92021F0079
   D000FE8C8D0F4A5BA0D0A060D0C060D0806D01
   5A5C71869328D00D2A5C74A,85
WI 167 DATA 4A4A4A85CBA9248D01D2A5BB0D0A0
   60D0C060D0906D020A5BAF00BA9008D03D28D0
   2D24CFE2BA5C80A0A0A0A18,160
LZ 168 DATA 69328D02D2A9248D03D2A5BAF0284
   A4A4A4A8D01D2A9C938E5BA8D00D28D12D0A90
   085C80D10068D1106C6BAD0,486
HW 169 DATA 08A9018D0F064C0E24AD1C02D0FB4
   C1027000000000000A5C4C902F00AAD0AD2290
   3D003A90160A90060000000,738
AO 170 DATA 000000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000,738
AR 171 DATA 000000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000,738
AU 172 DATA 000000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000,738
```

```
JI 20 REM LOAD AND RUN ROUTINE
          FOR HOT ROD RAIDER
OY 24 OPEN #1,4,0,"D:HOTROD.OBJ"
OL 25 POKE 850,7:POKE 852,0:POKE 853,32:P
   OKE 856,255:POKE 857,255
TB 28 X=USR(ADR("hhh LV "),16)
BO 30 CLOSE #1:X=USR(8232)
```

contact extra

WANTED

UTILITIES: Paperclip Manual & software, Atari P/reader, Graph-it, Letter & Spell Wizard, Pilot, Logo, Super 3D plotter 2 and B/Graph, must be cheap. Write to: Eric Steffens, 1 Rawson Street, Leicester LE1 9BG

TYPO III: Can anyone let me have a copy of this program? Please write to: Simon Fotakis, 16 Lascotts Road, London N22 4JN

XE USERS: Can anyone supply a replacement of Disk 3 only of Alternate Reality - The Dungeon as both my original and back-up refuse to load! I will provide disk and postage as necessary. Write to: Jeff Morgan, 3 Marlowe Gardens, Gaer Estate, Newport, Gwent NP9 3LD

CASSETTE & PRINTER/ PLOTTER: 1010 cassette deck wanted + Printer/Plotter suitable for use with an 800XL, also 800XL User Instructions. Tel: 0333 -330 -336 and ask for Kenneth

RESCUE ON FRACTULAS: I want a cassette or ROM cartridge version of this game please. Reasonable price paid. Write to: 29, Alder Hey Road, Eccleston, St.Helens WA10 4DJ

GENEALOGY HELP: Can anyone help me with a copy of Compute Your Roots or any other software concerning Genealogy? I tried to find it in the States but it is not available. All expenses will be paid. Please write to: J. Harten, Puntpoortstraat 12, 4332 AE, Middelburg, The Netherlands

BOOK WANTED: "Your Atari Computer" by Len Poole (McGraw Hill). Must be in very nice condition. Phone: 021-742-8038

TECHNICAL HELP: Does anyone have any technical information on the 810 disk drive? Please telephone Peter Kerrison on 0252 -871308

TAPE/DISK TRANSFER: Upgrading from datacorder to disk drive, need Transdisk IV or any similar utility disk. Loads of tapes to convert! Phone: 0506-413626

THE TIPSTER CALLING!: I need Quest For Eternity and Cloak Of Death (preferably transferred to disk) as I think someone has eaten my copies!! Reasonable price/postage paid. Please write to: The Tipster, c/o PAGE 6, PO Box 54, STAFFORD ST16 1DR

PENPALS

800XL USERS: I would like to hear from cassette-based users with an interest in arcade games to swap info etc., from any age/area, male or female. All letters answered. Any XL users in the Leamington Spa area willing to start a user group? Write to: Chris Easterlow, 16 Hanworth Close, Leamington Spa, Warks, England CV32 7PP

OVERSEAS PENPALS: Anyone still into the 8-bit? My main interests are midi and printer stuff. I have lots of weird and wonderful shareware progs. Write to: Dave at: 356 Sissons Road, Middleton, Leeds, LS10 4JG, West Yorks, England. (Tel: Leeds - 717712)

XL/XE USERS: My name is Daniel and I'm 35yrs old. I own a 130XE, 800XL, 1029 Printer, 2 1050 Drives, XC12 tape recorder, 1020 Plotter, Serial RS2320 Printer, A850 Atari module interface and a French 'Cenatel serial/concurrent modes printer interface and an Amstrad CTM 644 colour monitor with TV tuner. I would like to know other XL users anywhere in the World. Write to: Mr. Daniel Carrodano, Les Oliviers B1, Montee de la Calade, 83300 Draguignan, FRANCE

8-BIT USERS!: Please write for details of a new monthly NEWSLETTER. Contributors very welcome. Allan Watson, 95 Braidwood Pl., Linwood, Paisley, PA3 3SW

8-BIT USERS!: Someone with an 8-bit + disk drive to chat Atari. Write to: John E. Liever, 185 Rosehill Court, Salford, Manchester M6 5JW

8-BIT USERS: Want to form a world-wide user group? Write to the following address for help and monthly newsletter: 127 Trueway Drive South, Shepshed, Loughborough, Leics., LE12 9DY

XL/XE USERS: I would like to hear from any XL/XE owners around the world. I own a 800XL and 130XE with XC12 data recorder and XF551 drive. I would like to swap hints & tips. All letters answered. Write: Clinton Davies, 20 Ridgemoor Road, Leominster, Herefordshire, HR6 8EL

XE PENPALS: I have an XE with XC12 and would love to hear from anyone, anywhere, so grab a pen and write to: Jer Kiwawe, Templenoe, Greenawe, Tipperary Town, Republic of Ireland

XE PENPALS: 23-year-old French student. I have a 1050 disk drive, 130XE, 1029 printer, 1020 plotter and 500 programs. All letters will be answered. Please write to: Eric Steffens, 1 Rawson Street, Leicester LE1 9BG

WORLDWIDE PENPALS: 25-year-old male wants penpals, male/female (where are all the female 800XL owners??), especially Australia and Europe, to write about 800XL's, 1050's and your country. I'm into Pink Floyd, Rush and other quality music and, of course, the best home computer ever made! Write to: Simon O'Hanrahan, 37 Rancorn Road, Westbrook, Margate, Kent, England

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discresion.

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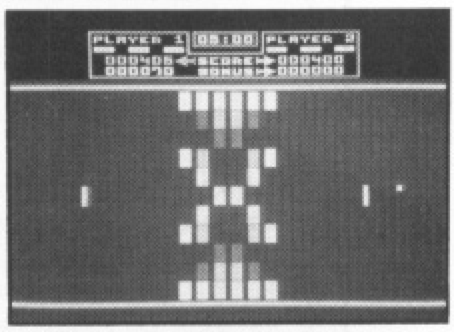


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Ian Finlayson's TUTORIAL SUBROUTINES

A DIARY

using several subroutines together

This time I have a set of subroutines combined in a program which will be useful to those of you who have a printer. I can only apologise to those who do not own a printer, and say that in my experience a printer is even more important than a disk drive in increasing the usefulness and productivity of your computer. For instance, this program can save you money - you may never need to buy a diary again! Unfortunately, by the time the magazine is out on the news stands it will be February so the ideas I am having now, in November, are not early enough to save you all buying 1990 diaries, but you will not have to buy one for 1991!

For some time now I have used one of those personal organisers, but I have been a bit disillusioned by its rather impractical physical size. It is too small and fat - which means that it always take up just a little more space than I have spare in my briefcase. For some time now I have thought of going to a larger A4 format in a slim ring binder, and just recently such a device has become available but at far too high a price. At the same time one of my colleagues has acquired a PC based time manager program which can print out a personal diary in an A4 size. These two events together set me to thinking that I should be able to get my Atari to generate diary pages that could be used in an ordinary ring binder, and here it is.

```
EI 1 REM *******************************
NU 2 REM *    TUTORIAL SUBROUTINE      *
GJ 3 REM *      DIARY PAGE MAKER       *
LS 4 REM *             by              *
WL 5 REM *       Ian Finlayson         *
ED 6 REM * --------------------------- *
HI 7 REM * NEW ATARI USER - February 90*
EP 8 REM *******************************
NO 9 REM
PU 15 INIT=1000:FINDDAYY=2000:FINDDAYM=30
   00:YEARPRINT=300:PAGEPRINT1=4000:PAGEP
   RINT2=5000:KEYPRESS=500:STYLE=400
AP 20 GOSUB INIT:REM *** INITIALISE
RL 25 LENGTH$="303232332323"
WE 30 ? "K↓↓↓↓WHAT YEAR DO YOU WANT DIARY
    PAGES FOR?";
QP 40 TRAP 30
DY 50 INPUT YEAR:TRAP 40000
RZ 60 GOSUB FINDDAYY:REM *** FIND FIRST D
   AY OF YEAR
DH 70 ? "↓PRINT ALL MONTHS?(Y/N) ":GOSUB
   KEYPRESS
NF 80 IF KEY=89 OR KEY=121 THEN GOSUB YEA
   RPRINT:GOTO 160
KK 90 TRAP 100
ZV 100 ? "↓WHICH MONTH TO PRINT? (1-12) "
   ;:INPUT MONTH:TRAP 40000
UG 110 IF MONTH<1 OR MONTH>12 THEN 90
SW 120 GOSUB STYLE
YP 130 GOSUB FINDDAYM:REM *** FIRST DAY O
   F MONTH
PL 140 IF FORMAT=1 THEN GOSUB PAGEPRINT1
RN 150 IF FORMAT=2 THEN GOSUB PAGEPRINT2
PL 160 ? "K↓↓↓↓ANY MORE PAGES TO PRINT? "
   ;:GOSUB KEYPRESS
NP 170 IF KEY=89 OR KEY=121 THEN 30
GD 180 LPRINT CHR$(27);CHR$(64):END
PQ 299 REM ******************
          ***  PRINTYEAR  ***
          ******************
SU 300 GOSUB STYLE
QN 310 FOR MONTH=1 TO 12
IB 320 GOSUB FINDDAYM:REM *** FIND FIRST
   DAY OF MONTH
PL 330 IF FORMAT=1 THEN GOSUB PAGEPRINT1
RN 340 IF FORMAT=2 THEN GOSUB PAGEPRINT2
BW 350 NEXT MONTH
ZL 360 RETURN
XY 399 REM ******************
          ***    STYLE    ***
          ******************
```

THE MAIN LOOP

Lines 15,20 - These do the initialisation. First, line 15 allocates variable names to the first lines of all the subroutines so they can be called by name rather than by number, then line 12 calls the initialisation subroutine.

Line 25 sets up the string LENGTH$ with the number of days above 28 in each month.

Lines 30 to 50 call for an input of the year you want to deal with. The TRAP will stop the program crashing if a silly input (such as letters instead of numbers) is made, and the TRAP 40000 removes the trap when it is no longer required. I have not limited the range of numbers which are acceptable here, but you must remember that the rules for generating the calendar have changed in past history. The algorithm I have used to generate the date and find leap years is currently valid but should not be used for dates before 1752 in UK (1582 in Europe) when these rules were introduced.

Line 60 calls the subroutine which finds out which day of the week the first day of the year is.

Lines 70,80 - These ask whether a printout for the whole year or only one month is required. The subroutine "Keypress" returns 89 for "Y" and 121 for "y" and this will cause the program to call subroutine "Yearprint". I was going to call this subroutine "Printyear" but the Basic interpreter in the Atari computer is too clever and treats "PRINTYEAR" as "PRINT YEAR", a print statement rather than a subroutine!! If a y is not pressed the program continues through the main loop.

Lines 90-110 - these call for the input of the month number. Again errors are trapped and numbers out of the range 1 to 12 are rejected.

```
KX 400 TRAP 400
CD 410 ? "↖↓↓↓↓ONE (1) OR TWO (2) PAGES P
   ER MONTH ";:INPUT FORMAT
IX 420 TRAP 40000
ZG 430 RETURN
DF 499 REM ********************
           ***  KEYPRESS   ***
           ********************
PE 500 OPEN #1,4,0,"K:"
KY 510 GET #1,KEY
LF 520 CLOSE #1
ZH 530 RETURN
OR 999 REM ******************
           *** INITIALISE ***
           ******************
SH 1000 DIM LENGTH$(12),MONTH$(108),LINE$
   (60),KEY$(1)
BN 1020 MONTH$="  JANUARY FEBRUARY    MAR
   CH    APRIL      MAY      JUNE     JULY
     AUGUSTSEPTEMBER  OCTOBER NOVEMBER"
BG 1030 MONTH$(100,108)=" DECEMBER"
GQ 1040 LINE$="_":LINE$(60)="_":LINE$(2)=
   LINE$
SS 1050 LPRINT CHR$(27);CHR$(108);CHR$(10
   )
BA 1090 RETURN
HG 1999 REM **************************
            *** FIRST DAY OF YEAR ***
            **************************
HI 2000 LEAP=(YEAR=4*INT(YEAR/4))-(YEAR=1
   00*INT(YEAR/100))+(YEAR=400*INT(YEAR/4
   00))
CS 2010 IF LEAP THEN LENGTH$(2,2)="1"
KL 2020 Y=YEAR-1:DAY=YEAR+INT(Y/4)-INT(Y/
   100)+INT(Y/400)
OJ 2030 DAY=DAY-7*INT(DAY/7):IF DAY=0 THE
   N DAY=7
AM 2040 RETURN
DM 2999 REM ***************************
            *** FIRST DAY OF MONTH ***
            ***************************
NR 3000 DAYM=DAY:IF MONTH=1 THEN RETURN
QN 3020 FOR M=2 TO MONTH
LY 3030 DAYM=DAYM+VAL(LENGTH$(M-1,M-1))
EV 3040 IF DAYM>7 THEN DAYM=DAYM-7
GY 3050 NEXT M
AT 3060 RETURN
WF 3999 REM ******************************
            ** PRINT 1 MONTH - 1 PAGE  **
            ******************************
NM 4000 LPRINT MONTH$(MONTH*9-8,MONTH*9);
   " ";YEAR
TC 4010 LPRINT LINE$
XP 4020 FOR DATE=1 TO 28+VAL(LENGTH$(MONT
   H,MONTH))
AA 4030 IF DAYM=1 THEN LPRINT "MONDAY
   ";DATE:LPRINT LINE$
UH 4040 IF DAYM=2 THEN LPRINT "TUESDAY
   ";DATE:LPRINT LINE$
RV 4050 IF DAYM=3 THEN LPRINT "WEDNESDAY
   ";DATE:LPRINT LINE$
QA 4060 IF DAYM=4 THEN LPRINT "THURSDAY
   ";DATE:LPRINT LINE$
SI 4070 IF DAYM=5 THEN LPRINT "FRIDAY
   ";DATE:LPRINT LINE$
JJ 4080 IF DAYM=6 THEN LPRINT "SATURDAY
   ";DATE:LPRINT LINE$
RO 4090 IF DAYM=7 THEN LPRINT "SUNDAY
   ";DATE:LPRINT LINE$
AA 4100 DAYM=DAYM+1:IF DAYM=8 THEN DAYM=1
PX 4200 NEXT DATE:LPRINT CHR$(12):RETURN
MA 4999 REM ******************************
            ** PRINT 1 MONTH - 2 PAGES **
            ******************************
NN 5000 LPRINT MONTH$(MONTH*9-8,MONTH*9);
   " ";YEAR
TD 5010 LPRINT LINE$
QA 5020 FOR DATE=1 TO 16:GOSUB 5130:NEXT
   DATE:LPRINT CHR$(12)
JV 5030 LPRINT MONTH$(MONTH*9-8,MONTH*9);
   " ";YEAR;" (cont)"
TM 5040 LPRINT LINE$
BB 5050 FOR DATE=17 TO 28+VAL(LENGTH$(MON
   TH,MONTH)):GOSUB 5130:NEXT DATE
CW 5060 LPRINT "NOTES":LPRINT CHR$(12):RE
   TURN
KN 5130 IF DAYM=1 THEN LPRINT "MONDAY
   ";DATE:LPRINT :LPRINT :LPRINT LINE$
EU 5140 IF DAYM=2 THEN LPRINT "TUESDAY
   ";DATE:LPRINT :LPRINT :LPRINT LINE$
CI 5150 IF DAYM=3 THEN LPRINT "WEDNESDAY
   ";DATE:LPRINT :LPRINT :LPRINT LINE$
AN 5160 IF DAYM=4 THEN LPRINT "THURSDAY
   ";DATE:LPRINT :LPRINT :LPRINT LINE$
CV 5170 IF DAYM=5 THEN LPRINT "FRIDAY
   ";DATE:LPRINT :LPRINT :LPRINT LINE$
JM 5180 IF DAYM=6 THEN LPRINT "SATURDAY
   ";DATE:LPRINT LINE$
RR 5190 IF DAYM=7 THEN LPRINT "SUNDAY
   ";DATE:LPRINT LINE$
AD 5200 DAYM=DAYM+1:IF DAYM=8 THEN DAYM=1
AK 5210 RETURN
```

Line 120 calls subroutine "Style" to find if you want 1 or 2 pages to a month. This subroutine can easily be changed if you want to introduce more alternative formats for your diary pages.
Line 130 calls "Finddaym" which finds the day of the week for the first day of the month.
Lines 140 and 150 call one or other of the two page print subroutines.
Lines 160 to 180 cause a loop back to line 30 if there is a requirement to print other months or years. If not a printer reset is sent (CHR$(27) CHR$(64) for the Panasonic) to leave the printer in its standard configuration, then the program ENDs.

PRINTYEAR SUBROUTINE

This subroutine is the same as part of the main loop except that instead of asking for a specific month to print it uses a FOR NEXT loop to cycle through all the months thus printing pages for a full year.

STYLE SUBROUTINE

All this does is find out whether the diary should be printed with one day per month or two.

continued overleaf

KEYPRESS SUBROUTINE

I have used this in previous articles, all it does is return the value of the key pressed in the variable KEY.

INITIALISE SUBROUTINE

Line 1000 initialises string variables.
Lines 1020,1030 fill variable MONTH$ with the names of the months. The uneven spacing is used to make all months the same length (9 characters) by padding with leading blanks.
Line 1040 fills LINE$ with 60 underline characters.
Line 1050 - This sends a string of characters to the printer to set the left margin in 10 characters. The numbers I have used are OK for a Panasonic KX-P1081 and, I believe, most Epson compatibles. Check your printer manual for an equivalent, or in the last resort leave this line out. I have moved the margin to more or less centre the printing on the page so that holes for the binder can be punched in either margin.

FINDDAYY SUBROUTINE

Lines 2000, 2010 check for a leap year. The rule is that a leap year occurs in every year that can be exactly divided by 4 but not if it is exactly divisible by 100 unless it is exactly divisible by 400. Do you get that? Years 100, 200 and 300 are not leap years but 400 is and multiples of these values are the same. If it is a leap year LEAP=1 and 1 is inserted into the string LENGTH$ to reflect the extra day in February.
Lines 2020, 2030 work out what day of the week the first day of the year is. The days are numbered from 1 (Monday) to 7 (Sunday). One day is added every year and an extra day in leap years. The final number is reduced to a value between 1 and 7 by taking away the number of whole sevens in the total. INT(DAY-1) is used rather than INT(DAY) so as to end up in the range 1-7 rather than 0-6. The variable DAY now holds the value of the first day of the year.

FINDDAYM SUBROUTINE

Line 3000 sets DAYM equal to DAY, the first day of the year. If the selected month is 1 (January) there is no need to go further as the first day of January is the first day of the year, so we RETURN.
Lines 3020 to 3050 comprise a FOR NEXT loop from month 2 (February) to MONTH, the selected month. Each pass through the loop adds the number of days above 28 in the previous month to DAYM. These values are recovered from LENGTH$. If DAYM goes beyond 7 it is reduced by 7 so that it always stays in the range 1-7.

SUBROUTINE PAGEPRINT1

This subroutine prints out one month of diary on one page. The normal fanfold computer paper is just long enough if it is set up with the print head very close to the perforations. If you are using single sheet A4 it fits more easily.
All the routine does is to print month and year on the top line, then a dividing line followed by the days/dates in sequence with dividing lines between.
Finally CHR$(12) is sent to the printer. This is a form feed on a Panasonic (or Epson compatible) - for other printers look up the code in your manual. This leaves the printer ready for the next month.

SUBROUTINE PAGEPRINT2

This is very similar to PAGEPRINT1, but uses two pages for a month. This fits easily on the page and gives much more space for entries on weekdays, but I have kept the weekends to single lines. You will see that there are two FOR NEXT loops, the first for 1st to 16th of the month and the second for 17th to the end. There is a form feed between the two pages and at the end of the second.

DEVELOPMENT

With the subroutines to find the first day of the year and first day of the month in place it is comparatively easy to configure the printout to your own specific needs. You can print standard personal organiser pages or calendars. Once you have achieved the format that you want print all your pages and then photocopy them onto quality paper if the standard flimsy computer paper is not good enough, or print direct onto single sheets of quality paper. If you are careful with alignment you can print onto both sides of the paper to keep the thickness down.

If you get into difficulties or if there is something you would like to see in future articles write enclosing a SAE and I will try to help - send a cassette or disk if the problem is complex, I will return it.

My address is: Ian Finlayson,
60 Roundstone Crescent, East Preston,
West Sussex, BN16 1DQ

ST FILE

Just as this issue was being prepared the 520STE reached these shores, unannounced, as part of the Power Pack or Explorer Pack which was supposed to include the 520STFM. The latter machine, it seems, is now gone and the STE will take over. Good news? Well, maybe, but you'll have to wait quite some time for software to appear which uses the extra features of the STE (basically more available colours, a bit of hardware scrolling and stereo sound) but in the meantime you can have great fun in finding out what software doesn't run on the new machine! Yes, Atari have done it again, folks! The STE has TOS 1.06 installed which contains an amended version of the desktop which improves many of the previous functions like disk copying and has a new selector box which is still not a patch on the Little Green Selector available as Shareware but it doesn't run some of the existing software! So what doesn't run? For a start the present version of STOS and all STOS based products, although an upgrade has already been issued. If you buy STOS make sure you get the latest version or the update disk with your purchase. Other games which won't run in their present versions include Starglider, Overlander, Predator, Altered Beast and probably many more. All these games are being changed but watch out if you buy mail order as you may not get up to date copies.

Artronic seem to have settled down with new releases coming, regularly. One to lookout for is SOLDIER 2000 in which you play a female soldier of the future! Outlaw have S.E.U.C.K. available which sounds pretty horrible but is in fact a Shoot Em Up Construction Kit which, supposedly, allows you to create your own games masterpieces using the tools that the professionals use. DAMOCLES must be out by now surely? Lots of pre-release stuff was floating around before Christmas for one of the most hyped game of the Eighties. Will it become one of the first hits of the Nineties? FUTURE WARS just missed a review this issue and is claimed to be a new type of computer game that has taken three years to develop. It's an adventure which the authors claim is "as intelligent as Sierra On-Line but 20 times better produced"! Domark are still busy snapping up coin-op licences and S.T.U.N. RUNNER is the latest to look out for but they state that it will not be released until late 1990! Meanwhile, just as we went to press, Tyne Soft's BEVERLY HILLS COP hit the streets and looks likely to be the smash of year so far, at least it should sell a lot of copies just on the packaging which prominently features Eddie Murphy.

It's going to be an interesting year as far as prices are concerned with several new labels putting out ST software at £4.99. Smash 16, part of the Interceptor Group released half a dozen titles last year, some reviewed this issue, which include HOLLYWOOD POKER, EXTENSOR, EAGLES NEST, WAR MACHINE and JOE BLADE. Code Masters and Mastertronic also have a number of £4.99 titles and there should be many more available shortly assuming, that is, that the main distributors and retailers are willing to sell them! Many of the titles are re-releases and not particularly sophisticated but there are one or two new releases and some real gems at the price. If the good ones take off then we could find a real sort out in the ST world this year as previous 'bargains' at £9.99 and £14.99 suddenly become rather expensive in comparison. Looks like 1990 could be the year in which the proliferation of discount merchants begins to abate and we get back to some sense. There are going to be some who go to the wall, after all how much can you make in discounting £4.99 games? Let's hope that it's not your money in the post when the announcements begin!

ELVIRA - MISTRESS OF THE DARK



The falconer with his falcon



The falcon attacks!



A Skeleton Warrior. None too friendly!



One of the soldiers after your head

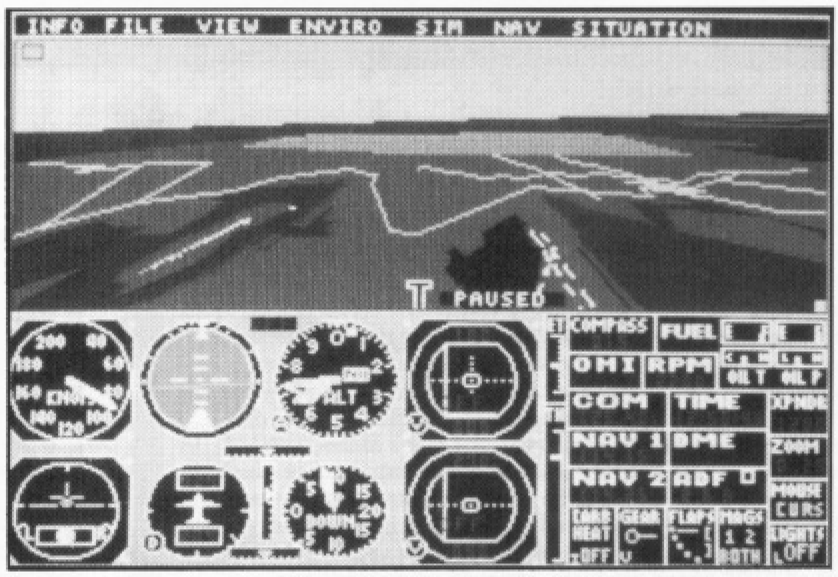
All screens shots taken from Horror Soft's latest release boasting not only excellent graphics but also digitised sound and a full Midi sound track

SURREALISM IN THE SKY

What's the connection between the Hawaiian islands, a seventeenth century sailing ship, a thirteen thousand foot high grand piano, and the secret jewel of the goddess Pele? You'll never guess in a million years, so I'll tell you. They're all features of Hawaiian Odyssey, the latest Flight Simulator II (FS2) scenery disk.

Sublogic appear to have taken a completely fresh approach with this exciting new FS2 accessory disk. To start with, the packaging is totally different from its predecessors, looking more like a game package than a piece of serious simulation software. The contents are much the same as before though, containing the usual single sided disk, map, instructions, and detailed airfield diagrams.

The subject of the disk is Hawaii, those magical isles situated halfway between the west coast of America and Japan. At first sight it seems very much like any other FS2 scenery disk. It covers the eight major islands in the Hawaiian group, and includes 26 airfields. Five of these are equipped with ILS (Instrument Landing System) for poor weather approaches, and also VASI (Visual Approach Slope Indicator), the system of coloured runway approach lights designed to help you land in clear weather conditions. There are radio navigation aids aplenty, so you'll have no problems finding your way around. Total area covered is about 100 miles by 350 miles, which is fairly small compared with some of the earlier scenery disks.

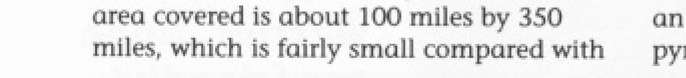


EXPLORE A VOLCANO

The Hawaiian islands are mountainous, and this is reflected in the scenery on this disk. Six of the islands have at least one mountain, with more on some islands. Two of the them have huge volcanic craters, which you can actually fly down inside if you're brave - and this is where the fun begins.

Descend into the main crater of Kilauea and you'll be thrown into an instantaneous space/time warp! Suddenly you're skimming the waves at the other end of the island chain, and if you look around you'll see a late seventeenth century sailing boat under full sail!

Make a slow descent into the main crater of Mauna Loa and you'll find yourself in a wasteland, seemingly featureless except for the Seven Portals, each one leading to a different alternate reality. Enter any portal and you're instantly transported to the strangest of strange lands. Here you'll find an airfield inside a massive truncated pyramid shaped fortress, which defies all attempts to land on it. You may also find an aircraft carrier floating 3500 feet above the ground, and airfield runways suspended at various heights in mid air. Again, they're impossible to land on, which is a great pity.



MONSTER KEYBOARD

Other weird sights include a gigantic grand piano, the keyboard of which is about the size of a normal airfield runway. Yet again the object seems to have the density of air and you just sink straight through it if you attempt a landing. Nearby there's a huge wall with a doorway in it. Fly through this and you'll find yourself in the biggest kitchen you've ever seen. It's complete with fitted units, fridge, and other kitchen furniture, and if you search carefully you'll even find a fly (about the size of your aircraft!) sitting on one of the worktops. This isn't realism - it's surrealism!

'transported to the strangest of strange lands'

The other portals lead to equally bizarre sights. I won't spoil any more of your fun by telling you about everything that's here, so buy the package and find out for yourself.

If you tire of the portals, try the quest for the secret jewel of the goddess Pele. This has you meandering from one end of the Hawaiian group to the other, following large flashing arrows laid out on the ground. Follow them to the end of the trail and you'll find something that Pink Floyd fans will instantly recognise!

All the graphics on this disk are of the usual excellent Sublogic standard, with everything depicted in full 3-D colour-filled form. Runways have received extra special treatment, with many having threshold markings, distance markers, and touchdown zones with dimensions and placement to FAA specifications. You can't get more realistic than that, can you?

Although I thoroughly enjoyed this disk I did find it less reliable than previous Sublogic products - it bombed out too often for my liking. Conventional scenery is a little sparse too, the only real buildings being a few tower blocks in Honolulu, and the USS Arizona National Memorial at Pearl Harbour. Overall, though, Hawaiian Odyssey is a welcome addition to the FS2 scenery disk library and is different enough to add yet another new dimension to the basic FS2 package. FS2 fans will love it.

Title:	**Flight Simulator II Hawaiian Scenery Disk**
Publisher:	**Sublogic**
Price:	**£19.95**
Reviewer:	**John S Davison**

MOUSE CHAMPION!

Waste of money buying another mouse isn't it? Les Ellingham used to think so until this little beastie arrived

Are you one of those folks who get quite frustrated with the slow speed of the Atari mouse and resort to one of the many public domain programs to speed up the mouse reaction? Those programs certainly work but can be a pain in that you must remember to run the program or boot with the right disk to autorun them each time and occasionally they clash with other programs. A better solution to the problem is a better mouse but until recently there have been no alternatives for the ST, at least not at anything like a sensible price.

Now from the land where STs are born (Taiwan) comes a new, relatively cheap, mouse that is compatible not only with the ST but also the Amiga and Amstrad. The price is still fairly steep at £39.95 but you can pick them up for less, and you do get a few free goodies like a mouse mat come cutting mat, a mouse holder and a discount voucher for a very small range of Electronic Arts software.

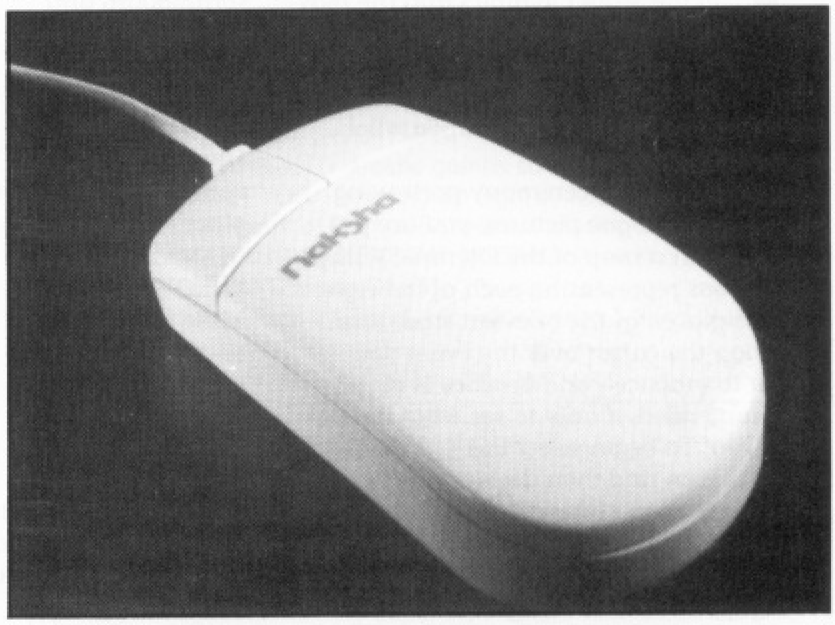
Now a mouse is a mouse isn't it? Well, that's what I thought until I got this little beast home and hooked it up. Over in the Far East they have obviously been doing some genetic engineering on mice and this one really is a joy to use. It claims a higher resolution, at 280 dpi, than standard mice which means that that cursor fairly flies about the screen and the buttons click smoothly and effortlessly. In addition it has a more ergonomic shape that lends it much finer control.

At first you will find that the resolution is too high and you will move the mouse far too quickly with the result that the cursor skips on screen. Slow it down with slight and gentle movement and you will find the Naksha mouse effortless to use. Go back to a standard Atari mouse and you will not believe how slow and clumsy it is.

As well as its ergonomic shape, the Naksha mouse has a much longer tail than its less developed cousins which, strangely, can be a bit of a nuisance. As there is a plug in adaptor for the ST about nine inches in length the mouse already plugs in some distance from the computer and a lead almost six feet in length means that you can either work from the other side of the room or have masses of cable whirling round your desk. I have resorted to burying most of it under the keyboard!

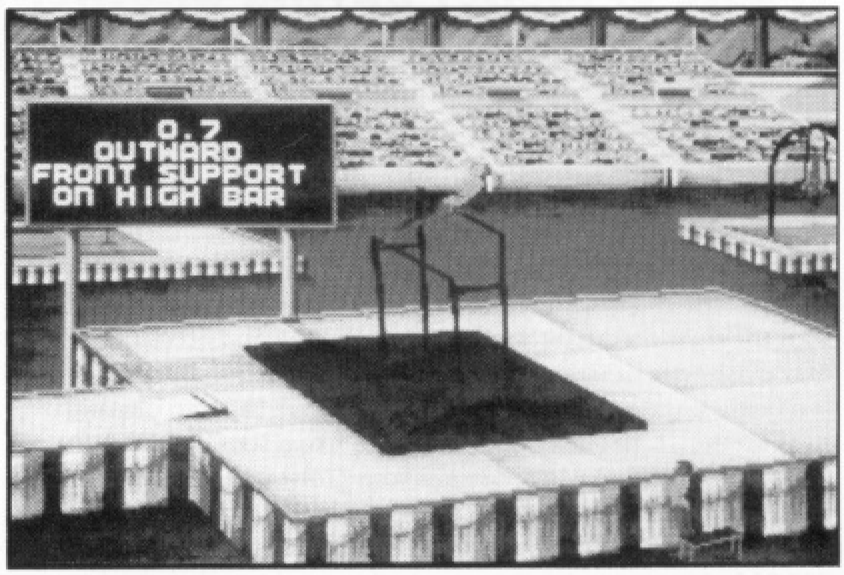
Upgrading your mouse might be considered to be one of those frivolous luxuries but, believe me, once you have tried this one you will wonder why you didn't buy one before. I bought mine at the Computer Shopper Show only because everything else was so boring and I desperately wanted to buy something. As it turned out it was a real treasure. The recommended price of £39.95 is high, even though other mice can cost a lot more, but you can get them discounted to around £30. I paid a mere £24.95 at the Amstrad User Group stand which made it a real bargain, so if you can't find one at your local ST shop, take a look through one of the Amstrad magazines.

My advice is to throw that Atari runt away and treat yourself to a real pedigree show mouse! •



THE NAKSHA MOUSE - A real pedigree rodent for £39.95

THE GAMES SUMMER EDITION



This latest sports simulator is linked to the Seoul Olympics and the player is invited to compete in eight events, namely: Archery, Velodrome Cycling, Diving, Hammer Throwing, Hurdles, Pole Vault, Rings and Uneven Parallel Bars.

After an opening ceremony portraying Korean travelogue pictures, you are presented with a map of the Olympic Village with icons representing each of the eight events placed in the relevant stadiums. Position the cursor over the event you want to practice - and practice is highly recommended, if only to see what lies before you! To begin select the 'OTHER OPTIONS' icon and then decide which country you wish to represent. You may compete with two or more 'human' players or against the computer.

ARCHERY entails setting the tension on the bowstring and aiming at the target, taking into account the changeable wind direction factors. This is the ONLY event that doesn't require a time limit.

VELODROME CYCLING presents a 3D view from behind two cyclists (with an aerial view of the whole stadium alongside), one of whom is under joystick control. Speed is built up by frantically waggling the joystick, but it is also possible to 'slipstream' directly behind your opponent to save energy and effort, and then make a break for the line when ready.

DIVING appears to be easy, but it is more difficult than you think. Set the desired tension on the springboard and away you go. The spring must be precisely timed to allow any of the 16 possible dive variations to take place.

HAMMER THROW takes a while to get used to. Waggle the joystick and watch your thrower turn faster and faster, then hit the fire button at the correct moment and away it goes .... try letting go whilst he hammer is facing directly at you!!

HURDLES .... again, your success is really down to the speed of your joystick waggling prowess, although precise timing of your leaps over the hurdles is crucial if you don't want grazed shins.

POLE VAULT allows you to view your vaulter from the front. Speed him up by moving the joystick left and right in synchronisation with his foot movements, plant the pole correctly and over you go .... hopefully!

The next two events take place indoors and are a little more complicated, however you will find comprehensive instructions for these latter two (with diagrams) in the game documentation.



THE RINGS require you to move from position to position in a graceful sequence to attract maximum points, waggling the joystick at a certain speed to perform the move indicated by a flashing icon on the screen.

THE UNEVEN PARALLEL BARS is in a similar vein, but you simply push up or down to select the direction of motion and your little gymnast does the rest.

The graphics are extremely varied due to the different events but are always of a high standard. Animation is smooth and there's plenty of it throughout this particular package. There are also some nice humorous touches, as in the Archery event when a disgruntled little mole appears cursing in 'Korean' if you should bury your arrow in the ground below the target. Your competitor will also be seen crying like a big baby if he fails to come up to scratch on the indoor events!

'much practice will be required'

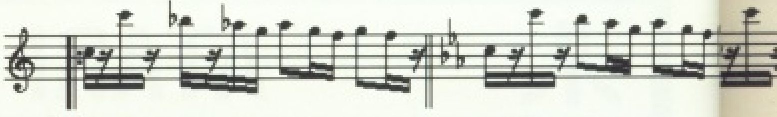
Sensible control systems make it easy for anyone to get into the game straight away, but cleverly designed events mean that much practice will be required. The only drawback with this type of package is the amount of disk swapping and the time lapse between events. This ST version comes on four disks so be prepared for many delays.

The Games - Summer Edition is a useful multi-format sports simulation and this makes it a winner for athletics fans or otherwise.

- ***SIGHT & SOUND** - Both digitised and 3D graphics are utilised and are very impressive. The music is fine with great sampled sounds and spot FX, and the occasional humour ties in nicely with the general 'feel' of the game*
- ***GAMEPLAY** - Smooth execution of most of the events and so much variety that you'll be spoilt for choice*
- ***VERDICT** - The complete layabout's chance to compete in the Olympics ... but have a spare joystick warmed up, just in case!!*

Title:	**THE GAMES - SUMMER EDITION**
Publisher:	**U.S.Gold/Epyx**
Price:	**£24.99**
Reviewer:	**John R. Barnsley**

MAKING MUSIC WITH YOUR ATARI



John S Davison's regular guide to all the ways of making music on your favourite computer

Last issue's announcement about the arrival of the ST public domain software for the Yamaha PSS-480 and 680 home keyboards seems to have created quite a stir! The new PSS disk in the Page 6 PD library is an instant hit it seems, so there must be an awful lot of you PSS owners out there. For those who haven't got the disk yet, here's a few details to whet your appetite.

The programs were written by David Gymer of Louth, Lincs., who needed certain MIDI utility programs for use with his PSS-480. As there was nothing available commercially he decided to create them himself. Like many programming enthusiasts Dave is letting the rest of the ST community benefit from his hard work by releasing the code into the public domain. Thanks Dave, it's very much appreciated!

The PSS disk contains several useful utilities, including a PSS patch editor, a drum machine program, a MIDI System Exclusive librarian, a music tablature sheet printer, and a few sample voice patches and drum patterns to get you started. As a bonus, Page 6 have added several song files in Activision's Music Studio format arranged specially for the PSS machines. There's also (very) brief documentation on disk for each of the main programs.

BUILDING PATCHES

The most interesting program for me is the Patch Editor. The PSS's front panel gives you access to only nine of its voice parameters. Dave's program now makes it possible to get at the rest via MIDI System Exclusive facilities. It lists 36 voice parameters on the screen, and you just key new values into them as required. Push one button on the PSS and you can instantly play the new voice patch you've created.

One small snag - there's nothing to explain what these parameters actually are or what they do! Useful clues can be gleaned from the section of the PSS's instruction manual entitled "Exclusive Data Format". It doesn't explain things in detail, but the information there plus a little experimentation should soon give you a basic understanding of which parameter does what.

The Patch Editor can only download voices to the PSS's voice banks, so you can't upload an existing voice to inspect or modify its parameters. It does have disk save/load facilities though, so once you've created a voice you can store it for later use. On bootup the program provides parameters for a 'default' voice, and this plus the supplied sample patches give you a good starting point for experimentation.

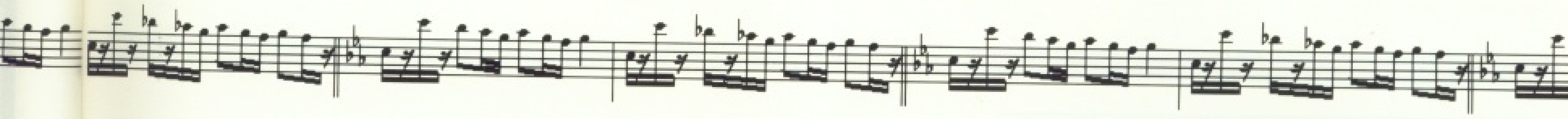
This program means we now have a way of collecting and distributing PSS voice patches. If any of you create patches you're particularly proud of, why don't you send them to me (care of Page 6) for possible inclusion on a future PSS Voice Patch Library PD disk, or publication in this column? Send them on disk (with SAE please, if you want it returned!), or just copy the parameter names and values from the editor screen onto paper and send that. Dave Gymer shared his work with the Atari community - here's your chance to do the same and help repay him. Everybody benefits, so get cracking now!

PSS MEMORY DUMP

The next program is the System Exclusive Librarian, which allows you to bulk dump the PSS's memory into the ST using MIDI System Exclusive facilities. This means you can now capture and store the five voice patch memories, the onboard sequencer's five melody and chord memories, and the rhythm pattern memory. So, anything you can customise on the PSS can now be saved to disk for reuse at any later time!

Even better, each of these items can be split out of the bulk dump and saved as separate files, so you can build up libraries of voice patches, songs you've sequenced, and rhythm patterns. These are really great facilities to have and will add enormously to your enjoyment. The only extra I'd like to see is a way of splitting the sets of five voice patches out into separate voices so you could load them individually into the Patch Editor. Any chance of implementing this, Dave?

The drum machine program turns the PSS into a drum machine (surprise, surprise). Instead of the PSS's single two bar drum pattern capability, this utility lets you program as many different two bar patterns as you wish, via a very easy to use grid based editor. These may then be linked together and looped as required to form the rhythm track for a complete song. There's a fixed choice of only nine percussion instruments from the PSS-680's



set of 32, and you can't synchronise the rhythm with the PSS's internal song sequencer - you have to play along 'live' with it. But then at the price, who's complaining?

The final program is rather out of place on the PSS disk, as it's a utility for printing out blank guitar tablature forms. Guitarists sometimes use these as an alternative to conventional notation when writing music down on paper. There's not much to say about it really, except that it's designed to use the IBM character set on Epson compatible printers, and seems to work OK.

Overall, I can't see how any PSS owner would want to be without this disk. It adds enormously to the enjoyment of using the instrument, and at £2.95 it's unbeatable value for money!

GOING ONE BETTER

I've been using my PSS-680 for well over a year now, and have learned a tremendous amount about MIDI and electronic music making from it. But - the upgrade bug recently struck, and I succumbed to the charms of a Yamaha YS-200 synthesiser. If I was amazed by the PSS-680 when I first got it, then I've been knocked breathless by the YS-200! If you're contemplating upgrading, or just want to start with a more 'professional' instrument you may be interested to hear about the differences between this type of instrument and the basic PSS machines.

First and foremost is the sound! I fell in love with it the first time I heard it, as the instrument produces some gloriously rich sounds. As supplied it has 100 preset patches, plus a further 100 programmable memories for your own patches. These can be saved on an optional 32K RAM card if required. An additional 100 presets can be plugged in on ROM cards, so you can have up to 300 different on-board voices available if you wish.

It uses the same basic synthesis method as the PSS machines, but employs a much more complex version of it. It's called Frequency Modulation (FM) synthesis, now considered old fashioned by the pundits as it's been around for about 5 years. The PSS machines use the most basic form of FM, using only two interacting digital waveform generators (called 'operators'). The YS-200 has four operators, and these endow it with a far richer sound than its little brother. Also, these operators may be interconnected in several different ways (known as 'algorithms') to produce sounds which are impossible on the PSS. For instance, you can synthesise the sound of a whole orchestral string section, rather than just that of a single violin as on the PSS.

If you think 36 patch parameters on the PSS is bad enough you should see what you have to do with a four operator machine! To give Yamaha their due, they've fitted the YS series of synthesisers with 'Easy Edit' features, which considerably simplifies the job of patch editing but, as on the PSS machines, this cuts down the control you have over the parameters and restricts the possibilities. So, for total control of all the parameters you have to use an ST based patch editor.

DIGITAL EFFECTS

The YS-200 also has a built-in stereo digital effects processor, and this contributes massively to the quality of the sound. It can add a wide range of hall, room, or plate reverberations, delays, echoes, distortion, gated reverb, and reverse gated reverb to the synthesised sound. I particularly like the reverbs, as they add a smoothness and spaciousness to the sound that's a joy to hear.

Like the PSS, the YS-200 has a built-in sequencer, but this one's much more advanced. It has eight tracks, each with eight voice polyphony. In comparison, the PSS has only five monophonic tracks. As well as real-time recording it also has step-time, punch-in/punch-out, quantize, and song edit facilities, and your sequenced songs can be saved out onto an optional RAM card for long term storage. In fact, it has most things an ST based sequencer has, but it's not nearly so easy to use.

The other big difference is that the keyboard is designed for adding expression to your music. The YS-200 keys are full size, unlike the mini-keys on the PSS. Also, they're velocity sensitive so hitting them faster produces a louder sound. They're also aftertouch sensitive, so pressing them harder after the initial depression can trigger additional effects, such as vibrato, tremolo, wahwah, or tone shifts.

Unlike the PSS, the YS-200 can't produce sound on its own. You have to plug in headphones or a separate amplifier and speakers to actually hear anything. It doesn't have the automatic play 'fun' features of the PSS either - you have to play this beast for real. It's only eight voice multitimbral compared to the PSS's twelve, and you have to manually allocate voice polyphony to MIDI channels. This is a real pain after using the PSS's dynamic voice allocation feature.

As you can see, making music can become rather more complicated when using more upmarket equipment. This could mean you have to spend MORE time on the technology and LESS on the music, which is not the idea at all! It's here that the ST running good software can be of great benefit, taking care of the complexities for you. In future articles I hope to be able to look at some of these products in detail to see how much they do help.

MIDI-MASTER

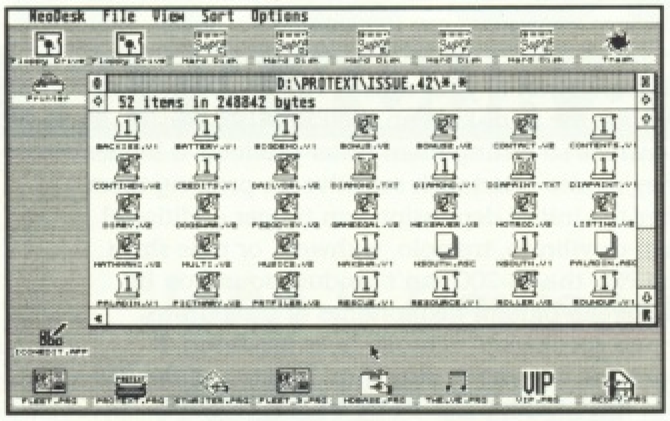
Remember I mentioned MIDI-Master (the MIDI interface for the 8-bit machines) a few issues back? The reason I haven't mentioned it since is because we've had great problems finding Molex plugs with which to connect it to the 8-bit machine's serial port. Well, we finally found enough to make up just 32 interfaces, and are in the process of getting these manufactured. Soon, 32 lucky 8-bit owners will be able to buy them and start making music via MIDI. If they're ready by the next issue I'll tell you more about it then. In the meantime, if you know the whereabouts of any unmade Molex plugs (plugs made up as leads will not do), please tell us, as I'm sure the demand for MIDI-Master will far exceed the current batch of 32! (*All 32 were sold within a week of the preliminary announcement, even though they were not, at the time, available - Ed.*)

That's all for this time, folks. Don't forget to write to me (care of Page 6) with your music queries, suggestions for things you'd like to see covered, or to send those killer PSS voice patches you'd like the world to know about. I'll be delighted to hear from you. ●

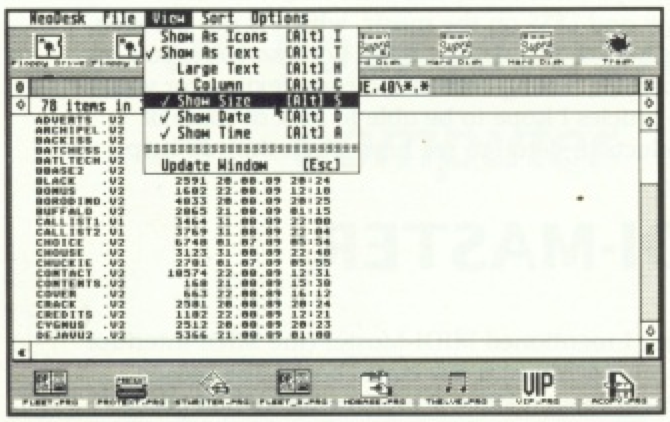
THE PAGE 6 PSS DISK

The PAGE 6 PSS DISK for the Yamaha PSS series is available from PAGE 6 PUBLISHING, P.O. Box 54, Stafford, ST16 1DR price £2.95.

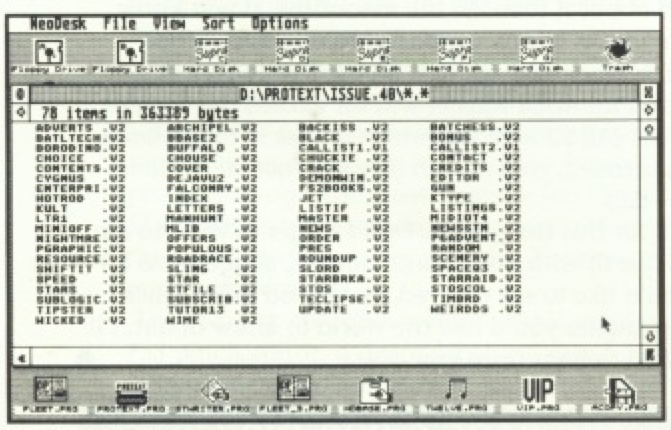
NEODESK



An example of the various icons that may be used in Neodesk. Those in the window easily and quickly show different versions of work in progress. On the desktop are icons for frequently used programs, any of which may be run directly from the desktop without opening any windows, just double click on the icon. All of the icons are user definable.



Files may be shown as text and there is a wide choice of information that can be shown or not. Here small text is used but the normal size that GEM uses is available. Information not normally required such as date and time can be excluded and a Template option allows you to show only files with particular extenders or filenames. Full wildcard selection is available.



Here files are shown as text with the details of size, date and time removed. Neodesk fits as many files as it can in the window, according to the amount of information you have selected. In this instance there are 78 files in full view. These can be quickly switched to single column if it is easier to view them that way.

If you are a serious user of the ST then, like me, you probably don't buy that many programs. Once you have found the programs that suit your particular use of the computer then you tend to stick with them. In my case the programs that I use most are Fleet Street Publisher and Protext with maybe four or five regularly used utilities and it is very rare that I actually need any other programs. In order to actually buy something new I need to be sure that it will get as much use as the other programs I have. I bought Neodesk, after seeing the public domain demo version and it certainly lives up to the aforementioned criteria, in fact it has become the one program that I use every time I boot up the ST and I now wouldn't be without it!

A TOTALLY NEW DESKTOP

Neodesk completely replaces the GEM desktop and provides a totally flexible environment that addresses most of the problems of GEM and adds many new features that you may not have even considered but which quickly become indispensable. The most obvious new features are the user definable icons used to replace the standard GEM icons and, whilst at first these seem rather gimmicky, they quickly provide a much faster way to recognise all the different files on your system enabling you to work much faster.

Working faster is one of the major advantages of Neodesk. The GEM style windows are retained but the 'grow and shrink' boxes are dropped and other features added like a 'go to back' button. There is no horizontal scroll bar, instead all files are fitted into the available width meaning that only vertical scrolling if required. If you are viewing in text mode then even that may not be necessary as you can use small text and take out non-essential details like time and date. In this way over 100 files can be shown in a window! Most users will find that more than adequate.

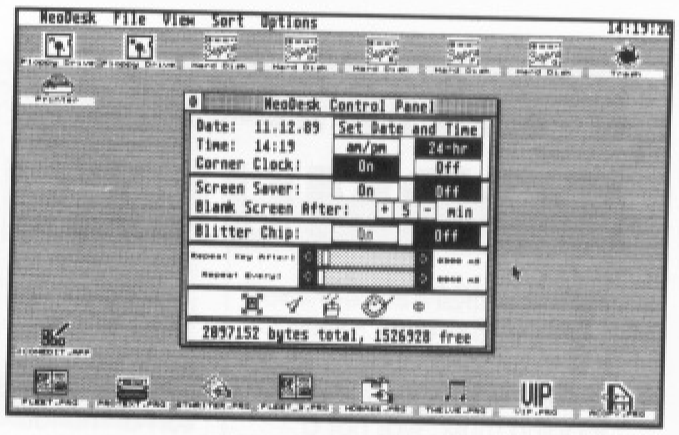
The various drop down menus of GEM are either replaced or enhanced and little problems like not being able to rename folders are solved. Much more information on disks or hard disk partitions or files is available and Neodesk can give your disks unique volume names which can be quickly and easily changed. Have you tried doing that with GEM?

MANY MORE OPTIONS

Formatting floppies and copying information is now a real joy since there is a built in formatter that allows you to select the number of tracks and sectors per track and use a 'twister' format for faster loading. Copying from disk to disk is much faster and gives you the option to copy with or without format or to just copy all files, much better than trying to highlight them all in a window.

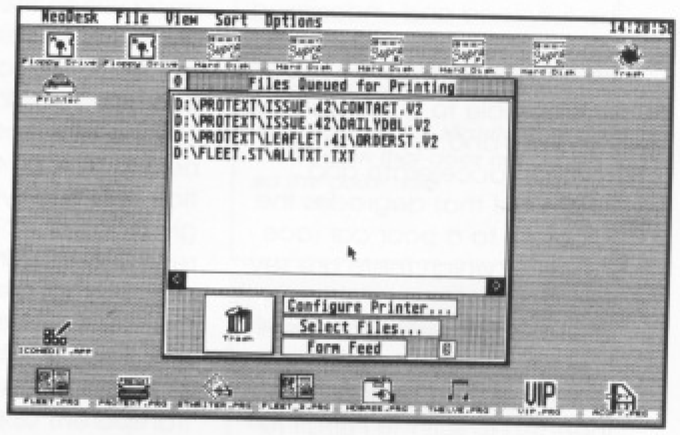
Copying files in general becomes a delight as Neodesk will try and copy in as few passes as possible and in the quickest way. All files to be copied are first read into memory and are then written out to the destination disk with a progress report on screen as you go. An added bonus, much used, is a Move function which copies files to other drives and also removes those files from the original drive. On a hard disk this is much, much faster than a standard copy and then delete.

Having wasted a lot of money in the past on programs that don't perform, Les Ellingham needs to be convinced that a program is really useful before buying it. Does Neodesk qualify?



The comprehensive Neodesk Control Panel has more features than the GEM version including a useful corner clock that stays on screen throughout most programs, even those that don't use GEM. Again note the icons along the top, personally selected. If you don't like this style choose something that you do like!

A lot of the facilities available, once selected may be saved in a desktop file but, unlike GEM, any number of different desktop files can be created and saved. If you switch between colour and mono then Neodesk will recognise and load the appropriate desktop so that you always have the best setup. Having the best setup is one of the real advantages of the program and perhaps its strongest feature is the ability to take any program out of a window and drop it on the desktop. This means that your most used programs can be run directly from the desktop without ever opening a window and it doesn't matter where those programs are or in what folders.



Neodesk contains a useful printer feature that allows you to configure your printer and queue various files for printing, no matter where they are on the disk. To print files you can just drag them to the printer icon or use the 'queue'. All printing is carried out as a background task so you can get on with other work.

CREATE YOUR OWN ICONS

There are many other facilities that I have not mentioned such as the ability to perform a warm or coldstart from the keyboard, the use of key commands to replace all drop down menu items and many others. The one extra feature that must be mentioned is the Icon Editor which enables you to create your own custom icons. This is an easy to use grid editor, much like a sprite editor, with which you can amend any existing icon or create your own. Alternatively separate icon files can be loaded in and individual icons can be added to your personal collection. Several hundred such icons are available in the public domain.



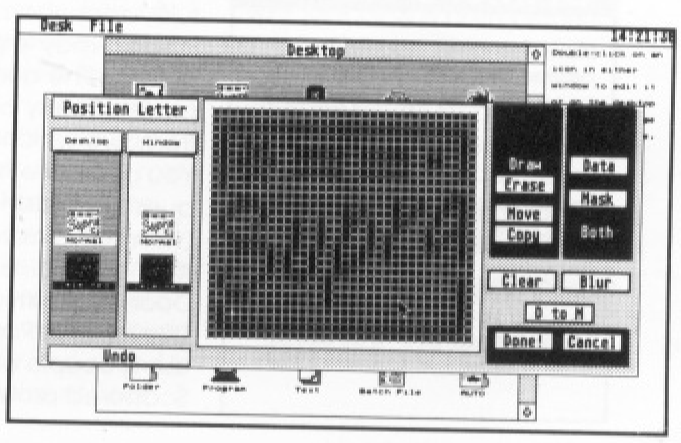
Lots of options may be set and the desktop can be saved in a variety of ways. Unlike GEM, you are not restricted to one single format, and can save several different desktop setups. Neodesk saves separate mono and colour desktops so that if you switch between each, the relevant desktop setup is loaded.

ESSENTIAL FOR HARD DISK USERS

Neodesk really comes into its own when used with a hard drive but it can be used quite effectively in a twin drive system. On a single drive its use may be quite limited since it needs to reload each time you exit a program but even then many of the facilities may prove to be quite useful.

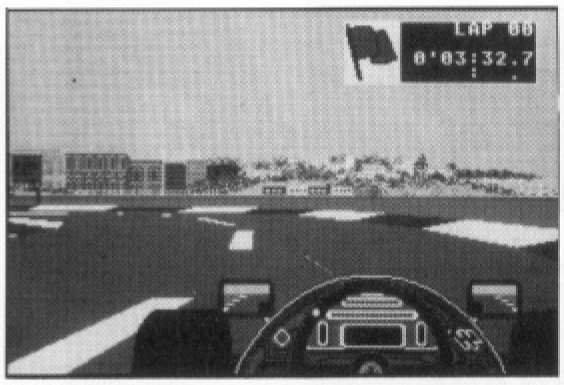
For Hard Disk users I would say that Neodesk is almost indispensable and if used with the shareware programs Headstart to autoboot and the Little Green File Selector, which is everything that the GEM selector boxes should have been, it will transform your ST into a totally different, much more flexible and more powerful system. I cannot recommend Neodesk highly enough, it is now the one program that is used more than any other I own and worth every penny of its price.

Neodesk costs £39.95 and should be available from most reputable ST retailers, although it seems a little difficult to locate. A public domain demo version is available from Page 6 price £2.95 and is highly recommended if you are not quite convinced that your system needs upgrading.



A number of standard icons are available with Neodesk but if you don't like them you can quickly and easily design your own with the Editor supplied. Other, ready drawn, icons are available in the public domain and most of those used in the setup illustrated are taken from the Page 6 Library disk ST228 which contains hundreds of icons and an excellent demo version of Neodesk.

FERRARI FORMULA I



The strains of Fleetwood Mac's 'The Chain' echoed in my mind as I looked at this game. Sadly the loading music was not a patch on this but the game certainly was. This one claims to be a Grand Prix Motor Racing simulator which is an apt description. The packaging includes a comprehensive instruction booklet that needs to be fully read and understood in order that the utmost value may be gained.

It is possible to quick start the program and use the mouse to steer, accelerate and brake but that degrades the program to a poor car race game of which there are several comparable and some better versions. The interest in this is from the pit modifications and the changes needed to suit the Ferrari to race on each of the Grand Prix circuits of the world.-

The game proper starts before the opening of the 1986 racing season at the test track in Italy and here, after perusing the manual, it is possible to select your favoured gear, suspension, tyre and engine settings or rely on your chief mechanic's advice which is normally fairly good. Once the settings are decided, and practice at the test track has you feeling confident, it is possible to accelerate the real time clock to the next race. Once more practice and qualifying rounds give room to fine tune and renew the engine and other parts so that the real race may take place.

The track scrolls in the manner of Pole position with semi-transparent opposition appearing and disappearing round bends. It is possible with practice to win races and obtain points on the Grand Prix table, but make a mistake and you could be hospitalised for many days even missing the next race.

The sound effects are weak and unconvincing, the graphics bear only fleeting resemblance to the tracks concerned, although all major chicanes or trademarks are included. Perhaps this game does not want judging as an arcade race game but rather as a long term tactical simulation.

I enjoyed it as a challenge and also on the level of understanding the problems a Grand Prix team faces throughout a season.

FACTS

Title: **FERRARI FORMULA I**
Publisher: **Electronic Arts**
Price: **£24.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The spot effects and engine noise are weak while the graphics only adequately convey the impression of the race track

GAMEPLAY

Tactically interesting. Learning to control the car is a challenge but it is not a fast arcade game, merely an acceptable race game

VERDICT

A good simulation of a Grand Prix season - only buy if that is your interest

PALADIN



Paladin is an RPG which uses a bird's eye view of your men and the terrain around them similar to the battle sequences of the Ultima series and the SSI Fantasy RPGs, but spread over a much wider scrolling area.

There are 10 short quests to fulfil, after each of which your Paladin may improve in his abilities. The quests can be played in any order (apart from two which are linked). You get some helpers in each quest: Swordsmen, Mages (with half a dozen spells at their disposal, e.g. Detect Door, Invisibility, Fireball), Thieves and Rangers (who can use a couple of the spells). Scattered around may be any of 13 items, such as Crossbows, Amulets of Levitation, Potions of Healing and Orbs of Fire. The objectives involve rescuing prisoners, finding scrolls, killing enough of the enemy and escaping. The enemy range from Dragons and Trolls to Sorcerors and Spirits, all deadly!

Play is almost entirely mouse-driven. Each of your characters is given an allocation of Movement Points each turn, based on basic ability, load, health and vitality. Every action - moving, fighting, etc. - takes a certain number of MPs. Once you have moved all your guys then the enemy gets to use his MPs which can be quite deadly as each enemy may be able to aim multiple blows at your guys, and you can only save at the END of the enemy phase!

Unfortunately the mouse reacts very slowly and there are not enough icons on the screen. For example, there is a Sword Icon for Attack, but none for Cast Spell. Instead you have to hold down SHIFT while clicking on the Sword Icon! Weird! Similar strange combinations of key-strokes and mouse clicks have to be used to switch characters, turns, or to end your turn. The other downer is that it is all a bit slow, the screen scrolls slowly every time you move a character, and slow GEM windows open to ask you questions. Dungeon Master it ain't!

The biggest bonus is that you can create your own quests. The game includes a complete Dungeon Editor with over thirty terrain types for you to build your own overland adventures or dungeons.

FACTS

Title: **PALADIN**
Publisher: **Omnitrend/Artronic**
Price: **£19.95**
Reviewer: **John Sweeney**

SIGHT & SOUND

Average graphics, adequate for the type of game; minimal sound effects

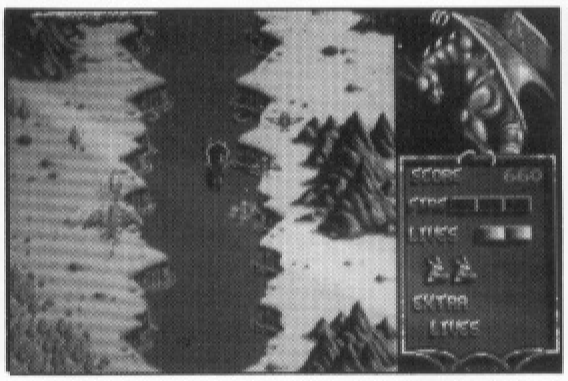
GAMEPLAY

Slow and cumbersome in places, but sufficient variety to keep you busy for a few hours

VERDICT

Not a great game, but good value if you want to build your own dungeons

DRAGON SPIRIT



Dragon Spirit is a conversion of an arcade game that still pops up in some local pubs and attracts some interest. Basically it is a scrolling game in which the object is to drop bombs on, and breath flame jets, at the opposition - evil minions of a cruel serpent demon. The player is, in fact, a large three headed dragon and is going to save the Princess Alicia. There are of course the mandatory end of level monsters to defeat to progress to each of the 8 levels all of which need the acquisition of bonus eggs and gems to ensure the full killing power of the creature.

This game comes with a sparser set of instructions than even the Capcom series, (why is it that software companies assume that everyone has played the original arcade game?) but fortunately this is not too great a handicap since most becomes clear after brief playing.

The game presents a slightly different light on the scrolling game although there is little that is different in the actual gameplay. The overall impression is that this is a workmanlike conversion that keeps most of the original's features and does not lose too much in the translation.

The scrolling is reasonable and the sound effects are adequate, although somehow though it did not generate the excitement or desire for repeat playings that I experienced in Xenon 2 for example.

The graphics are pleasant and unassuming, allowing some perspective sprites to loom out of the distance and threaten the creature. I felt that a great deal of what the game had to offer had bee done before and in some cases better. Had this game appeared twelve months ago I would have rated it as an innovative version of Sidewinder or Xenon as it's only claim to originality is the dragonisation of the hero which to me does not make a great deal of difference in the end.

If there are still players who enjoy this form of scrolling shoot-em up then it will satisfy their cravings but it is fairly bland and does not have the charismatic quality to make it a cult or even well remembered game.

FACTS

Title:	**DRAGON SPIRIT**
Publisher:	**Tengen/Domark**
Price:	**£19.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

The spot effects are relevant and the sound track ordinary, graphically it is quite pleasing

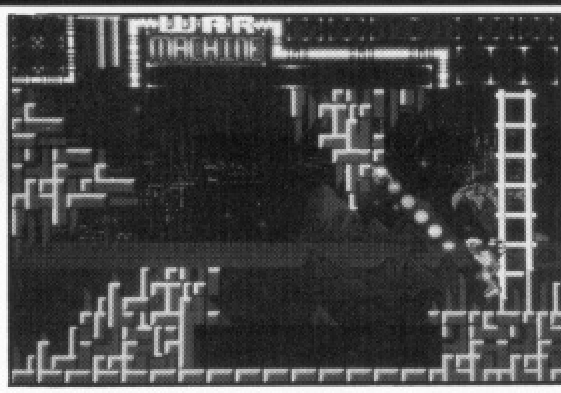
GAMEPLAY

An accurate but slightly slow conversion that does not quicken the pulse rate

VERDICT

A sort of plain vanilla type of game - nothing to condemn it but little to praise it either

WAR MACHINE



FACTS

Title:	**WAR MACHINE**
Publisher:	**Smash 16**
Price:	**£4.99**
Reviewer:	**John Davison jnr**

SIGHT & SOUND

The graphics are not the best you'll ever see, but they are both fast and colourful. The high quality sound uses samples to great effect

GAMEPLAY

A very addictive arcade adventure, which is on a massive scale

VERDICT

Tremendous value for money. One of the best budget releases I have ever seen

Communications with the mining installation on planet XR27B have been lost. It is believed that the problem is caused by the dreaded enemy, The Alien Syndicate. You have been selected for a dangerous mission: to destroy the Alien Queen and her breeders. If you fail the legions of the syndicate will swarm across the entire universe leaving a trail of destruction in their wake.

War Machine is basically a large multi screen arcade game which has your character zipping around the colourful mining colony trying to destroy various pieces of alien equipment. You also have to find the parts of a special 'secret weapon' which is needed to kill the Alien Queen. Roaming around the mining colony are the usual bug-eyed nasties, who try to hinder your progress. Also you'll encounter deadly acid pools which are conveniently placed to drain away your energy at different stages of the game.

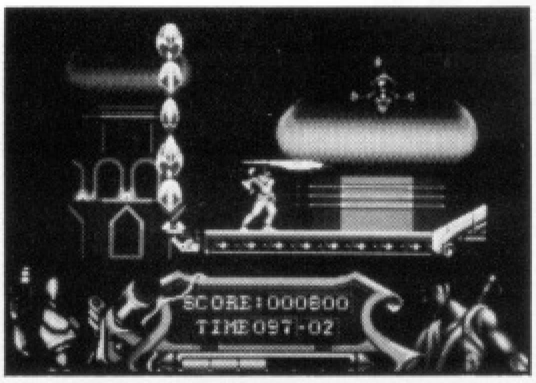
The graphics are very bold and colourful, and whilst not being the most well defined and highly detailed, they are very effective. The action is fast and the multi coloured aliens, coupled with your rainbow coloured laser beams and the weird and wacky backdrops make the game a positive feast of psychedelic vision. As with so many other releases recently, the sound is sampled. The noise of your powerful laser weapon is very satisfying, as are the deafening explosions when you destroy something. The music on the title screen also involves sampled voices and is most effective.

I found the game very enjoyable to play, but the icing on the cake which makes this game even better is its price - it's just £4.99! If only we could have more software of this quality at this price!

War Machine is both colourful and fun to play, is amazingly addictive, and it gives more value for money than any other game released so far.

'more value for money than any other release'

STRIDER



Another arcade conversion from Capcom, with the normal lack of instructions found with these games. Fortunately the game is joystick controlled and a brief trial shows the enjoyable nature of this beat 'em up game.

The scenario casts the player as Strider the super powered owner of some form of hi-tech (or magical) titanium sword who has, for some reason, to infiltrate the Russian Red Army and bring back State secrets. For some reason the Red Army is headed by an equally powerful superhuman who has to be defeated in the final screen.

The infiltration takes place to loud music and spot effects and fast, furious action but there is a keyboard option to pause the game so you can work out the next strategy. The instructions neglect to mention that a small flying saucer needs liberating to be your pet and reflector for your sword's laser blasts. It took me quite some time to realise the floating piece of metal that dwelt within the rocket was in fact friendly and that it was at times indispensable.

The game scrolls across highly colourful and detailed screens and the intelligent control system allows a vast variety of poses for Strider as he hacks and slides his way to the goal at the end of the level. The enemy sprites are well designed and actioned well, and some possess a degree of intelligence that is almost dangerous. The backgrounds show a great deal of imagination and imbue a strong science fantasy feel to the game.

Eventually I found myself enjoying this game, and realised that a great deal of joystick waggling had passed unnoticed, so much so I missed two appointments! Despite the rather gung-ho story line, which in this current thawing of the cold war may seem irrelevant, the game is rather good. I suspect that the screenshots on the box are taken from the arcade version since, although the ST graphics are colourful and strong they do not really compare to those on the box. The game has enough uniqueness and slick movement about it to make it a favourite for hack and slay merchants and it even contains an element of tactics in it.

FACTS

Title:	**STRIDER**
Publisher:	**Capcom/U.S. Gold**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Both piccies and noise keep the ST up to standard, smooth scrolling with loud effects and music add to the arcade feel

GAMEPLAY

Fast and furious, much better than many run of the mill games

VERDICT

Enjoyable, enthralling and addictive qualities abound, certainly worth trying

SAFARI GUNS



FACTS

Title:	**SAFARI GUNS**
Publisher:	**New Deal Productions**
Price:	**£19.95**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Visually colourful and full of jungle flavour, the sampled animal noises are initially atmospheric but subsequently tiresome

GAMEPLAY

Fast and smooth in play but a long time in loading, the idea becomes repetitive after time

VERDICT

I enjoyed the game, but only in small doses. The concept is novel and the game deserves some success for that

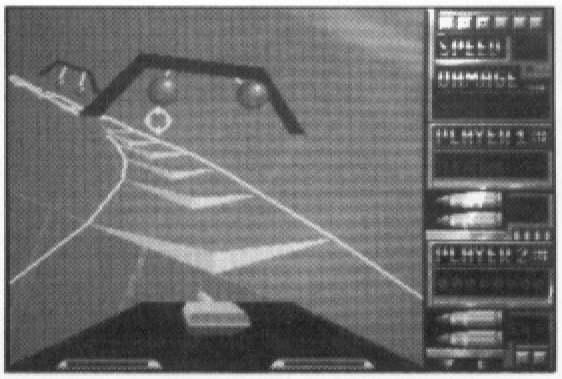
Shades of Armand and Michaela Dennis and David Attenborough! This target shoot game gives the player the opportunity to play animal guardian in Africa. The object of the enterprise is to shoot with a camera as many different types of animals as you can, and to shoot with your rifle as many poachers as possible. The two shooters (Kodak and Remington) are toggled via an on screen icon and both work and sight from mouse control. It is unfortunate that the poachers realise that you have an inbuilt desire to kill since they pop up to shoot at the player at quite alarming speeds. Taking pictures of the animals as they move is also a tricky job especially since points are scored for both uniqueness and quality of photo.

The version I was testing was rather slow to start up and although it contained some tasteful pictures of the African bush accompanied by sampled jungle noises and drums there was an interminably long wait for the game to start. Another small problem was that although I was offered the choice between German or English language versions the only language it would use was German. Fortunately this was not too great a problem since the mechanics are fairly simple and the multi language hand book gives just enough information to get by on.

Once the action starts it is fairly fast and furious and the whole is reminiscent of the gunshot recognition test from police firing ranges. Not all humans on screen are enemies and so speed and care needs to be exercised before shooting a potential poacher. When a poacher does appear you receive a down the muzzle view of him and unless your rifle finger is swift and accurate that is one life gone.

The game rests on the graphics which are very good. A great deal of smooth, fast, motion is maintained on screen and the game becomes most absorbing and fairly addictive, at least until the novelty wears off. Whilst the whole is presented well and entertainingly, each level is very much like the preceding one and the game does begins to lose its attraction.-

ROLLER COASTER RUMBLER



Amongst all the shoot 'em ups that are released over the year, it is sometimes difficult to select any *one* that really stands out from all the others ...... until now! Imagine taking your turn on the infamous Corkscrew at Alton Towers, armed with a hefty machine gun and complete freedom to shoot at everything that moves - or anything that you don't particularly like.

The instructions are a little sparse but it doesn't take too long to get well into the game. The car is controlled by joystick and you aim and fire with the mouse - both hands occupied as you would be holding onto the car and toting a machine gun at the same time. Anything coloured and moving can be blasted away; anything grey is armoured resulting in a resounding 'clang' when your bullets hit it. Every track gantry sports a pair of swinging spheres (big balls really!) that are shot at as you approach. If you miss, then pressing the fire button on the joystick switches to a rear view so you can have a second shot - but watch out for that next lot coming up!

As you proceed, a series of weird aircraft will fly overhead and drop more 'targets' before you which must be taken out as soon as possible before they increase your damage level. If you run out of time or bullets (you have 500 rounds per level) the game will end. Similarly, if your car sustains excessive damage you will ungracefully leave the rails and plunge headlong into the ground.

There is also a sort of flight simulator mode where you can happily fly about a multi-coloured landscape blasting everything in sight to improve your aim and mouse manipulation skills - you're gonna need 'em!! This flight simulator option could easily pass for a game in it's own right!! The solid 3D graphics are very impressive and, although I must confess to being a little confused with the controls of this game initially, after the first 'ride' there was no stopping me.

Roller Coaster Rumbler is, to quote the Python team "something completely different"; totally absorbing, brilliantly implemented and a real treat to play. I recommend you buy it and see!

FACTS

Title:	**ROLLER COASTER RUMBLER**
Publisher:	**Tyne Soft**
Price:	**£19.99**
Reviewer:	**John R. Barnsley**

SIGHT & SOUND

Very well defined 3D graphics with startling explosive effects - the audio cassette is an added bonus

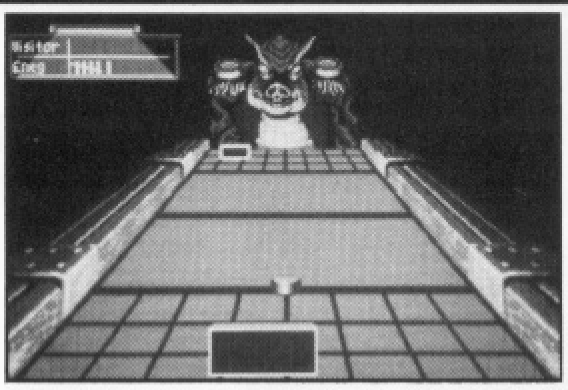
GAMEPLAY

Totally addictive from the outset

VERDICT

A unique combination of flight simulator and arcade shoot ' em up!A must for all shoot 'em up fans!

SHUFFLEPUCK CAFE



FACTS

Title:	**SHUFFLEPUCK CAFE**
Publisher:	**Broderbund/Domark**
Price:	**£19.99**
Reviewer:	**John Davison jnr**

SIGHT & SOUND

The graphics are fantastic being superbly drawn and smoothly animated. The sound effects are all sampled and of a very high quality

GAMEPLAY

Simple but effective. Extremely addictive

VERDICT

This is a game which can truly be classed as both challenging and fun

Howzabout a friendly little game of Shufflepuck? Shuffle what? This latest release to be distributed through Domark Software is a superb interpretation of the old classic 'Air Hockey' game which used to be the rage in arcades in a time long since past. For those of you who haven't the foggiest idea what I'm talking about, the basic idea in 'Air Hockey' is to hit a 'puck' (with your 'paddle') backwards and forwards across a table. The puck glides on a thin cushion of air, and can move very fast. The objective is to score a goal against your opponent by getting the puck past him without him returning it.

In Shufflepuck Cafe, you have stumbled into the galaxy's last den of air hockey enthusiasts, and these people take it very seriously! If you choose to enter the tournament you must play against each of nine opponents, all of whom have their own unique personality and playing style. The characters range from the utter wally called Skip Feeny through the mystical Princess Benjin and all the way to the supreme champion Biff Raunch. Alternatively, you can choose to play any one of the characters individually.

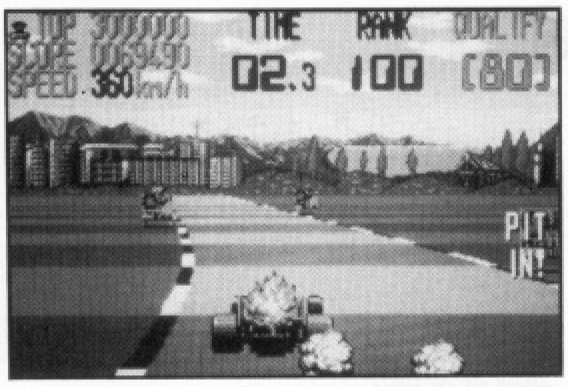
Your view of the game has you looking down the table towards your opponent with your 'paddle' in front of you. Once the game has started, it is the first player to reach 15 points who is the winner.

Graphically, the game is absolutely superb. The characters are all wonderfully drawn and the selection screen where you choose your opponent has to be seen to be believed! The screen depicts the smoky interior of the cafe with all of the characters around the Air Hockey table.

I was very impressed by the tremendous quality of the game. The sound is unusually good, as all of the sonic effects and the music are sampled. Each individual character makes a variety of different sounds, from grunts to words of congratulation.

The game contains many very nice touches and proves the point that it is often the simplest ideas which make for the most enjoyable games. I can highly recommend 'Shufflepuck Cafe'. It is superbly presented and great fun.

CONTINENTAL CIRCUS



This latest release from Virgin Games is an excellent conversion of the three dimensional racing game 'Continental Circus' by Taito.

The Continental Circus consists of a series of eight races, each running on a different track in a different country. To complete the series and earn the right to compete at Formula One level you must enter the 'Circus' and complete each stage within a qualifying position. Drivers entering the 'Circus' are given four credits which, if one stage is not completed, can be traded for another attempt starting from the same position.

Your view of the proceedings is from behind the car, with the road stretching out into the distance in front of you. Control is very simple, the car has a low/high gear shift and an accelerator to control speed, whilst left and right controls the car's position on the track.

Having played many racing games of this type over the last few years, I can say that whilst 'Continental Circus' is not the most original game concept it does have a few tricks up its sleeve. The game immediately attracts comparison with the game which started them all, 'Pole Position', however this one is not just another rip off. Throughout the races you will confront many obstacles, as you would expect, but added to the usual chicanes and other cars, you also have to contend with the weather! Sudden downpours of rain can seriously hinder your progress if you are not prepared.

Graphically the game is almost flawless. The scrolling is smooth and the backdrops and sprites are superbly drawn. Having played the original on a number of occasions, this is one of the few times that I can actually say that the ST version of this excellent game looks *very* close!

To play the game is tremendous fun and at times can be quite infuriating as you run out of time about two seconds away from the finishing line! I really enjoyed playing it and I look forward to getting further and further towards the final goal.

Overall, I can safely say that 'Continental Circus' is one of the few excellent arcade conversions, Virgin Games are to be congratulated.

FACTS

Title:	**CONTINENTAL CIRCUS**
Publisher:	**Virgin Games**
Price:	**£19.99**
Reviewer:	**John Davison jnr**

SIGHT & SOUND

Superbly drawn sprites and backgrounds with some very smooth animation. The sound effects are more than adequate for the game-

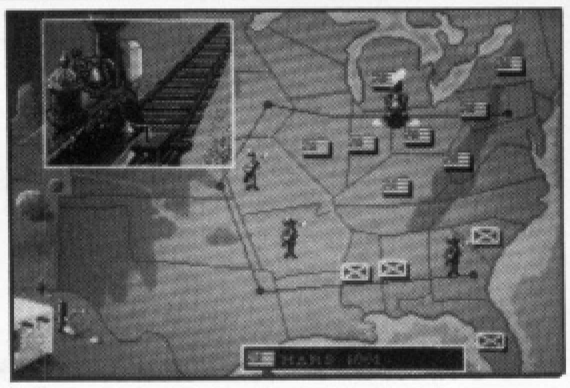
GAMEPLAY

An extremely playable game, very much in the classic 'Pole Position' mould. It is VERY addictive

VERDICT

A great racing game. Whilst not the most original idea it is an excellent development of an old favourite

NORTH & SOUTH



FACTS

Title:	**NORTH & SOUTH**
Publisher:	**Infogrames**
Price:	**£24.99**
Reviewer:	**John Sweeney**

SIGHT & SOUND

Excellent cartoon style graphics and animation. Great sounds - snatches of tunes and weird effects all over the place

GAMEPLAY

Easy to pick up - enough variety to keep you interested - nice two-player game

VERDICT

This is the kind of game that Defender of the Crown and Joan of Arc should have been! Great fun!

North and South refers, of course, to the two sides in the American Civil War. You move your armies across a map of the Eastern States, playing mini arcade games whenever you want to capture an enemy fort or train, and whenever two armies meet. If you want some more luck involved you can add random elements such as indians and thunder storms. If you want to add a little more depth you can have reinforcements from Europe, who join whoever controls the coast. And if you would rather play without the arcade sequences you can turn them off and let the computer decide the outcome of each encounter by comparing relative strengths and throwing internal dice for you against a Combat Resolution Table.

As if this wasn't enough variety, you can also play as North v Computer, South v Computer or two players; you can set either side to one of three difficulty levels and you can choose from four different years to start the game - the board is set up to be roughly accurate for that point in the war - playing a Southern Corporal against a Northern Captain starting in 1864 is NOT easy!

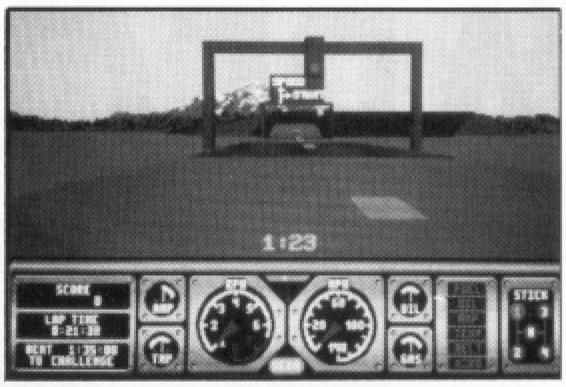
The train and fort arcade sequences are almost identical, one player racing against the clock across various obstacles, while the other tries to slow you down with punches and knife throws - simple but effective.

The battle arcade sequence is excellent with individual control of artillery, cavalry and infantry, plus minor terrain variations such as rivers and chasms - trying to cross a bridge under cannon fire is usually pretty suicidal! It is not entirely fair as you have to take your hand off the joystick and press SHIFT to switch between units, whilst your computer opponent does it all instantaneously!

Only the French could design a joystick based game for a machine with two joystick ports and force one player to have to use the keyboard! Still it does play quite well from the keyboard!

North & South comes on a double-sided disk - consult Infogrames before buying if you are single-sided.

HARD DRIVIN



This is a car driving simulation which comes from a very popular and highly successful arcade machine. Simply put it is up to the operator to guide a sports car which, I am informed, resembles a Testarossa in handling and general characteristics, around a speed track and a stunt track. The control for this is user definable and can be any combination of mouse, joystick and keyboard.

The description sounds easy but the game is not so, the simulation takes practice and skill to find success with which makes the game very addictive. The speed track is well presented with fast bends and all the attendant problems of a race track, together with oncoming traffic!The main aim is to obtain the fastest possible time and eventually qualify to race with the computer car in pure silicon excitement.

The most effective part of the game is the stunt track which needs very careful and skilful driving, from the in cabin behind the wheel view all the various problems become frighteningly real. The bridge with a hole in the middle that needs leaping at no more than 60 mph is tricky but the real eye opener is the loop the loop which needs a minimum speed of 60 to negotiate while steering on a spiral and eventually being upside down. The cockpit view is more effective than many flight simulators. This together with strong spot effects and good title music promises to make Hard Drivin one of the games of the 90's.

Graphically the scrolling is smooth and fast and although some oncoming vehicles look a little blocky the effect is strong and realistic. I found that using the option for Automatic gears and the mouse as steering wheel and accelerator provided the best control mix. In the early stages the car feels difficult to handle but even when dreadful mistakes are made the action replay helps the player to identify and correct mistakes. I enjoyed the feeling of satisfaction at negotiating the banking at over 100 mph with as much anti-skid control as possible. Once the racing stage is realised then the computer car will improve at the same rate as you so leaving every race a challenge. I cannot recommend this one highly enough.

FACTS

Title: **HARD DRIVIN**
Publisher: **Domark**
Price: **£19.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The opening credits are audibly and visually strong, the spot effects impeccable and, aside from blocky oncomers, the graphics good

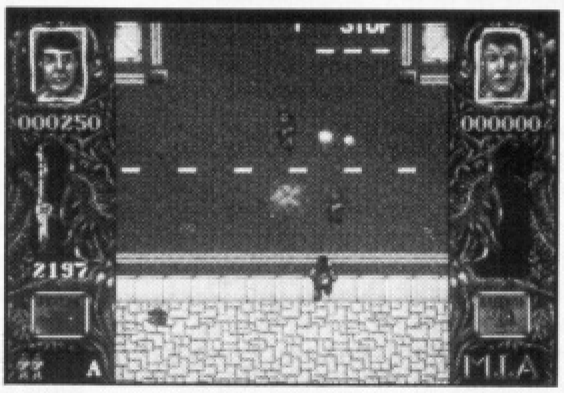
GAMEPLAY

Exciting, user definable, and engrossing, well worth the time it takes to master

VERDICT

This is a must for anyone who wants to try risky driving without hurting their no-claims bonus or their bodies!

DOGS OF WAR



FACTS

Title: **STEVE BAK'S DOGS OF WAR**
Publisher: **Elite**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

Presentation is very good. The sound is of a high quality and the graphics are well presented.

GAMEPLAY

What gameplay? It took me absolutely ages to last longer than a minute! It is way, way too difficult.

VERDICT

It's OK, but I prefer something with easier early stages.

You are a mercenary soldier, available for dangerous and violent work any time, anywhere. A number of missions have been offered to you for varying sums of money. Having selected a mission and bought your own weapons and ammunition you then have to stay alive as long as possible. On completion of one mission you can then go on to choose another, collecting large amounts of money for your violent deeds, thus making yourself a very rich mercenary in the process! On completion of all of the twelve missions (some hopes!) you are given the chance to join either the Regular or Salvation armies!

In appearance this game is very much like Commando. It's a scrolling shoot 'em up where you control your man, who has a number of chosen weapons at his disposal. To complete your mission you must find your target, determine what you have to do to accomplish your task, and - stay alive! Easy? You've got to be kidding!

Each successive go involves you first selecting your mission and then selecting your weaponry so that you have as much firepower as your budget will allow. You are then transported to the part of the world where your mission is to take place. Approximately five seconds later you will have been blown to smithereens, squashed, battered, and shot by every member of whichever revolutionary group you are sent to overpower!

Graphically the game is quite impressive. The backdrops and menu selection screens are all very well drawn and give the game a very high quality look. The actual game screen is also well drawn and it scrolls by very smoothly. The sonic effects throughout sound sampled and are again of very high quality. In terms of presentation I find it difficult to fault the game. The only problem is that it is too damned hard! When I first played the game I appeared to spend the majority of the time assessing the pros and cons of the weapon selection screen rather than in the game itself. It seemed as though I was being killed off as soon as I started! If you find every other game too easy, give this one a go!

SCAPEGHOST

The end of an era! After providing so much entertainment (and frustration!) to so many adventurers for so many years (15 adventures in 7 years to be precise - Erik the Viking never made it to the Atari!), Level 9 have decided to move on to other types of games.

So, Scapeghost is their final offering in the traditional text adventure style (with pictures on the ST) and they have certainly gone out in style. Scapeghost is an excellent game which will provide all adventurers with many hours of perplexing enjoyment.

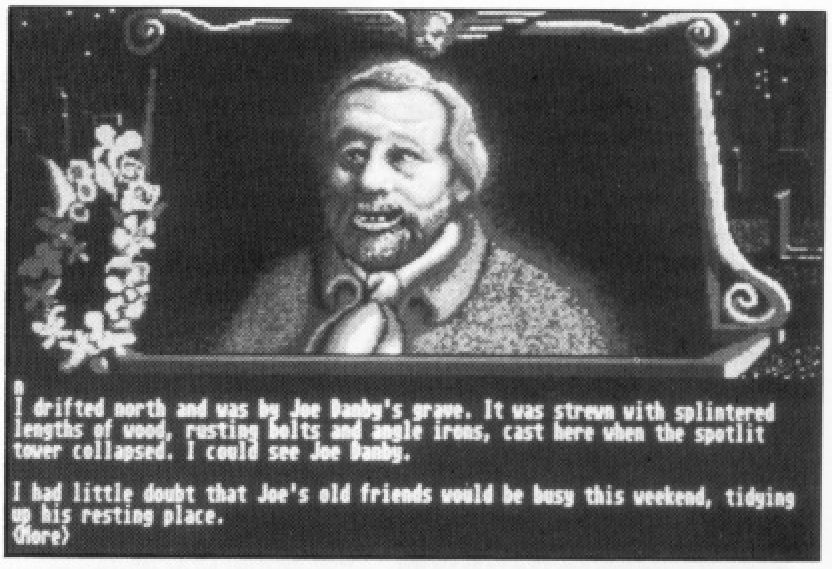
The plot is slightly offbeat. In most adventures you have to expend a lot of effort in avoiding the various horrible deaths that await you at every corner - in Scapeghost you don't have to worry about dying at all, you start off the game already dead! As you watch your funeral you realise that you have been given a second chance at thwarting the drug dealers who murdered you - all you have to do is develop some spectral powers and employ them in a number of clever ways.

As the mourners drift away and you start exploring your surroundings you will find that being a ghost does have some rather awkward limitations - like not being able to pick up simple objects for a start! (Hint - try some weightlifting to build yourself up - but start VERY easily!) Once you have mastered this you will find you can still only manage one object at a time, but the game is so well designed that this is not a problem - just type RUN TO OBJECT and the game will remember where you left it and take you there in a matter of seconds.



Title:	**SCAPEGHOST**
Publisher:	**Level 9**
Price:	**XL/XE**
	cassette/disk £14.95
	ST £19.95
Reviewer:	**John Sweeney**

The game comes in three parts as usual, to facilitate loading for those who only have cassette - and the usual caveats apply - excellent as it is you can't expect a perfect parser and vocabulary from a game designed to run in only 64K! But Level 9 seem to squeeze more in to that 64K than anyone else, so the adventure is still very enjoyable and fun to play, especially since they have still managed to squeeze facilities like RAM SAVE/RESTORE and UNDO (the last move) even on the 800XL!



Part One is set in the cemetery and is mainly to do with recruiting enough of the other ghosts so that you can slow the drug gang's plans down. In Part Two you gain the powers to heat and cool things, reach through things and summon the past. These form the basis for some nice little problems to solve as you haunt the gang's old hideout looking for clues with which to bring them to justice. And in Part Three you find you can bend metal, charge things with static or even manifest your ghostly presence to the mortals you encounter. All of which you will need to use in order to rescue an old colleague and help the police to finally catch the villains!

Most of the game is fairly straightforward, and in the first part you get lots of hints from a friendly old ghost called Joe, who follows you around and lends a helping hand whenever you can work out what is it you want him to do. The game oozes atmosphere and humour - I loved it when Joe wandered off muttering something about 'stack overflow' when I tried to give him too many commands at once! (Better to use FOLLOW ME than trying to persuade the ghosts to go somewhere and wait for you!) The sections get progressively harder and Part Three has some interesting challenges. But, never fear, Level 9 have the best hint sheets in the business. Even if you don't need any help it is worth sending off for your free clue sheet, it is packed full of background information, jokes and red herrings, not to mention hundreds of clues!

SCAPEGHOST is available on both XL/XE and ST - pictures from ST version

For the extra money on the ST you get more text, allowing scope for a little more atmosphere and a few extra jokes, command recall/edit, variable text size and some excellent pictures.

Good luck to Level 9 in their new ventures - I am sure that they will be just as enjoyable, albeit in a rather different format to that which so many of us have come to know and love over the years.

- ***GAMEPLAY** - Standard text adventure with lots of good features, Very fast response times on all machines. Good plot. Well implemented*
- ***GRAPHICS** - ST version has hand-drawn, atmospheric, scrolling pictures*
- ***SOUND** - none*
- ***VERDICT** - Another winner!*

THE ROUNDUP

At this time of the year there are always a lot of releases for the ST and it is impossible to review them all. Here Damon Howarth and John Davison Jnr take a quick look at the games received since the last issue which didn't quite make a full review

JOE BLADE

SMASH 16 ***£4.99***

This is one of the new budget lines that are now appearing and is a re-release of a game that was well thought of some time ago. The game is still as entertaining and fresh as it was at full price, and consists of guiding the hero to rescue hostages from the enemy and also dismantling time bombs through a tricky sub game needing letter ordering in the style of Impossible Mission. The game is humorous and absorbing. Certainly worth £4.99.

GAMEPLAY: Smooth and entertaining, with few problems in any department, a joy to play.

SIGHT AND SOUND: Good cartoony graphics add to the atmosphere while spot effects and the countdown effect add to the tension while problem solving.

VERDICT: Still quite different and well worth buying if you did not obtain the original. Highly recommended.

DH

COMMANDO

Elite ***£19.99***

Commando has always been very playable and this latest incarnation is no different. A very satisfying blast.

SIGHT AND SOUND: The graphics are small and colourful with some very smooth animation and scrolling. The sound could best be described as 'unobtrusive' as you don't really notice it unless you make a point of listening.

VERDICT: Another game dragged from the past. However it was very popular and has always been quite a favourite of mine. It is presented well and my only quibble is the price. It is far too expensive.

JD

FASTLANE

Artronic ***£19.95***

An interesting game, which could be described as a simple racing simulator, that involves much more skill than most driving games. It is surprisingly playable after a while.

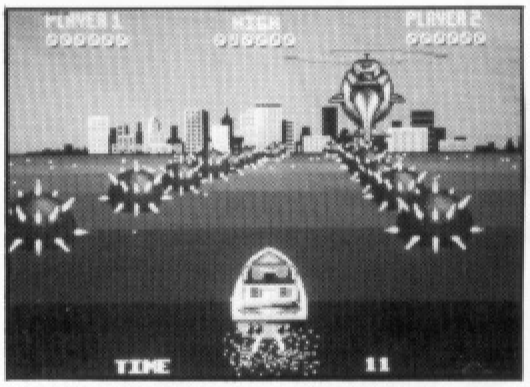
SIGHT AND SOUND: The graphics are not the most impressive I've seen, but the use of perspective is very good. The animation is very jerky and the screens are quite dull. The sound is a horrible monotonous droning.

VERDICT: It's not bad, but did nothing to impress me at all. It is a reasonably accurate driving simulator, though.

JD

SPEEDBOAT ASSASSINS

16 Blitz/Mastertronic ***£4.99***



This as far as I know is a new game for this budget label. It comprises the player taking a small but beautifully armed speedboat into various enemy harbours and then, with the aid of a helicopter neutralising them. The game allows player configuration of the controls and is most challenging. Controlling the boat is not easy and it took me a long time even to start the first level proper.

I am not sure whether this makes the game off-putting since the restart can become wearing after the umpteenth time in five minutes. The combat sequences are adequate and fairly fast, avoiding bullets and mines is a skill that takes a great deal of acquiring.

GAMEPLAY: Possibly too difficult, otherwise everything is very responsive to the controls.

SIGHT AND SOUND: The backgrounds are not exciting but the movement is smooth, sound is of adequate standard with apt bangs and crashes

VERDICT: Not bad for a cheapy, it is nice to see a new game rather than a rehash, but I did not particularly enjoy it.

DH

ROADWARS

16 Blitz/Mastertronic ***£4.99***

Another old game brought back at a cheap price, I seem to remember that this was included in one of the game packs that went with STs some time ago. The game is one or two player in competitive co-operation. It is your job as a pilot of a Battlesphere to clear the space roads of unfriendly technology on a rolling road. It is vital that your partner maintains some co-operation although in the bonus stage it is advantageous to destroy your partner so beware of dirty tricks. On the whole an entertaining diversion.

GAMEPLAY: Slick and well produced, possibly the cheapest two player game about.

SIGHT AND SOUND: Good smooth scrolling with bright colours and a pleasant ditty along the way, this game does not show its age at all.

VERDICT: Never one of my favourite games but perhaps the cup of tea of newer owners, the price makes it attractive and a fair buy.

DH

KELLY X

Mastertronic ***£4.99***

A monotonous and boring game based on one of the oldest themes ever! Shoot the spaceships as they fly past you in space - that's all there is to it. Ugh!

SIGHT AND SOUND: The graphics appear to be quite clever at first, being of the solid three dimensional variety. However, they are nothing very special. The sound, on the other hand, is downright dreadful.

VERDICT: Not bad for £4.99, but somebody somewhere must have a slightly more advanced imagination! I do hope it starts a trend pricewise and inspires other writers to produce something better at the same price.

JD

JOE BLADE 2

Smash 16 ***£4.99***



Another of the budget re-releases, this time Joe is trying to clean up a criminal city in a kung fu version of his original adventure. The same formula is apparent with the sub game revolving around ordering numbered tiles instead of the alphabet. This game does not have as much of the appeal of the original and at times it demonstrates some attribute problems since blows do not seem to land where they should.

GAMEPLAY: Not quite as slick as the original but still an entertaining romp, beware of the dustbins!

SIGHT AND SOUND: The graphics are different and Joe has become leaner otherwise they are of the same standard as the original, as are spot and musical effects.

VERDICT: Not as good as the original, although still a bargain at the price. If you liked Joe Blade then this should go down fine.

DH

Peter Hickman's

STOS COLUMN

A super new programming competition with over £200 worth of prizes!

A new input routine

News of upcoming products

A type-in light synthesiser

Since the last issue you may have noticed that quite a few new STOS products have been released, some of which may be reviewed elsewhere in this issue. To mark the launch of these products I am proud to announce, in conjunction with Shadow Software (creators of Skystrike Plus) and Mandarin Software (you know who they are don't you?), a competition which could mean fame and fortune (well, fame anyway!) for one or more lucky readers.

To become rich and famous all you have to do is recreate a classic 8-bit game, the only stipulation being that you use STOS to write the clone. The ***FIRST PRIZE*** is a pat on the back from me and what could be called a STOS programmers pack, which includes **STOS MUSICIAN, MAESTRO PLUS**0, **THE COMPILER, SPRITES 600, THE TOTAL MAP EDITOR (TOME)**, and **MINI OFFICE PROFESSIONAL (COMMS, SPREADSHEET AND GRAPHICS)** worth over £200! ***SECOND PRIZE*** is a copy of **GAMES GALORE, SKYSTRIKE PLUS, LANCELOT, TIME & MAGIC** and **MAESTRO** (not the Plus version!). Finally ***THIRD PRIZE*** is geared towards education and consists of the **THREE FUN SCHOOL 2 PACKAGES (under 6's, 6-8's and over 8's)**. Everybody who enters will get a copy of my STOS public domain educational program called Treasure Search which features digitised speech, high quality graphics and a very strange pair of feet.

After the competition is over all games entered will be put into the Page 6 and STOS Club public domain libraries, this will allow other STOS users to study and enjoy them. If any of the games are considered to be so outstanding that they wipe the floor clean with the 8-bit game they are trying to emulate there is the possibility that they could be marketed by Mandarin or Shadow Software so if you want to see your name on computer screens all over the globe get programming now and send your entries to me at the usual address (at the end of this article), and don't forget to include your name, address, telephone number (if you have one), any particular requirements the program has (1 meg memory, two disk drives, three eyed green space alien sitting on the monitor etc.) and finally please tell us what the game was called in it's 8-bit form.

All entries will be judged by myself and representatives from the companies supplying the prize's. The ***closing date is APRIL 25th*** so you have THREE MONTHS to come up with an 8-bit classic clone and remember it doesn't matter how good the game is, if it's late your entry will get buried at the bottom of my filing cabinet and won't surface until I clean it out!! Obviously if some cosmic catastrophe occurs the prize list may be subject to (very) minor alterations, but if all goes well some lucky person is going to have a very large parcel plonking itself on their doorstep some time in May.

Just in case you are a first time computer user and you haven't the slightest idea what I'm talking about when I refer to 8-bit classics (I hope you enjoyed your holiday on Mars!) I'll give you some idea's. My personal favourite 8-bit game is Mr Do (but don't let that throw you because I'm not the only judge!) but there are also Space Invaders, Pacman, Manic Miner (an old Spectrum game), Berzerk, Missile Command, Asteroids, Sabre Wolf, Lode Runner, Jetpac and a myriad of others. Remember, we (the judges) are not looking for innovation and originality, just a good old fashioned blast from the past rewritten in STOS.

BETTER ON THE AMIGA?

Big news, AMOS (the Amiga version of STOS) should be in the shops any day now. I have had the privilege of following it's development (thanks Richard!) from a mere word processor mock-up to it's current state which (in my humble opinion) makes STOS (or any other version of BASIC) look antiquated and useless. It has the raw power and speed of Assembly language and combines it with the eloquence and simplicity of BASIC. I will do a page long overview of the whole package in the next issue. Why?, I hear you ask. Well, because AMOS will be the foundation for a new version of STOS (provisionally called

STOS PLUS) that should be ready by the end of this year, although in the constantly changing world of computers this date may be a little optimistic, I leave it up to Francois Lionet and the rest of the development team to prove me wrong (please!).

THE SHOPPER SHOW

This column uis being written just after the Computer Shopper Show finished in London last November (all contributors to the magazine have to hand in their columns and programs well before publication), if you could not make it to this remarkable event I'll tell you what you missed. Just about everybody involved with STOS turned up, so you could have chatted to Aaron Fothergill (author of Skystrike Plus and TOME), Adam Fothergill (Aaron's brother who draws all the graphics for Shadow Software's products), Stephen Hill (author of the STOS manual and the new STOS book for advanced users), Simon Cook (author of the winning entry in Mandarin's STOS competition), Richard Vanner and Christopher Payne (Mandarin's Skystrike addicts), Sandra Sharkey (famous freezer owner and organiser of the STOS public domain library) and of course me.

Richard Vanner spent most of the day demonstrating various new STOS products the most amazing of which was STOS Vidi (watch this space for a review) which could be seen digitising scenes from the film TRON in real time using a ten line program. Simon Cook bought along the very latest version of Cartoon Capers, the one or two player beat 'em up structured just like a classic cartoon involving a cat and dog slogging it out in front of wonderfully colourful backdrops, the graphics are really cute but Simon assures me he cannot draw that well (I wish I couldn't draw that well!!). The game contains some excellent speech (or should that be screams?) and should (hopefully) be in your shops round about now. The interesting thing about Cartoon Capers is that Mandarin are bundling it with a new STOS extension that allows owners to read BOTH joystick ports (rather than one mouse, one joystick). Sandra Sharkey supplied me with some new STOS public domain software including another upgrade that maintains compatibility with the new version of TOS (for the STE) that is about to be released, check out the Page 6 library for the very latest word in all public domain software.

SOLVING SOME SOUND PROBLEMS

Hands up all of you who have had problems playing 5khz Maestro samples in your compiled programs, nasty isn't it! The solution is quite simple and relatively painless, just follow these simple instructions-

1) Boot the backup of your STOS language disk.
2) Insert the backup of your Maestro disk and load the program called "INSTALL.BAS"
3) Type POKE START(11)+$179f,4
4) Save the corrected copy of "INSTALL.BAS" onto you Maestro backup disk.
5) Run the program and re-install the Maestro extension onto your language and compiler disks.

You should now be able to compile programs using 5khz samples without those wonderful bomb's appearing when you run them.

MUSIC WHILE YOU LOAD

Have you ever wanted to play interrupt driven music to keep the player amused while loading the next part of your latest mega game? The secret is in how you manipulate STOS commands, the interrupt music system is programmed to stop while executing some of the STOS commands so these must be either executed before you start your music or just avoided altogether. The commands to avoid are LOAD, RESERVE, and ERASE all of which cause STOS to shift memory about. So if the LOAD command is amongst those you cannot use how do you read files from disk whilst playing music? Easy, just use this command to save the banks you wish to load

BSAVE "bankname.bnk", START (num) to START(num)+length(num)

where 'num' is the bank number and 'bankname.bnk' is the filename of the bank. To incorporate these blocks of memory back into your programs you must first reserve space for them at the beginning of the program, then to load them while the music plays use

BLOAD "bankname.bnk", START(num)

continued overleaf

```
10 key off : curs off : hide on : flash off : mode 0
20 locate 0, 12 : centre "LOADING MUSIC AND SPRITES"
30 load "music.mbk"
40 load "animals1.mbk"
50 SIZE=length(1) : rem          ***       FIND SIZE OF BANK      ***
60 reserve as work 6, SIZE : rem *** RESERVE AS SPACE FOR LATER ***
70 music on : music 1
80 locate 0, 12 : print space$(39); : centre "SAVING ANIMALS1.MBK TO TEST.BNK"
90 bsave "TEST.BNK", start(1) to start(1)+SIZE
100 locate 0, 12 : print space$(39); : centre "LOADING TEST.BNK"
110 bload "TEST.BNK", start(6)
120 locate 0, 12 : print space$(39); : centre "SIMPLE ISN'T IT?"
130 end
```

Music while you load - simply and quickly!

If I have lost you during that explanation type in Program 1 following these instructions

1) Format a blank disk and use GEM to copy two memory banks from your accessories backup disk called "MUSIC.MBK" and "ANIMALS1.MBK".
2) Boot your STOS backup disk.
3) Type in PROGRAM 1 and save it to the disk with the copied accessories on it.
4) Run the program, watch the drive light and listen.

HOW IT WORKS

LINES 10-20 clear the screen and prints a message to tell you what is happening
LINES 30-40 load the music and sprite banks into memory
LINES 50-60 place the length of the sprite bank into the variable 'SIZE' and then reserves a databank that will be used to contain the re-saved sprites
LINE 70 starts up the music
LINES 80-90 print a message and then starts to save the sprite bank using the 'BSAVE' command
LINES 100-110 print a message and then loads the saved data into bank 6, all while the music plays

It is quite possible to save sprites, music, screens, even digitised sound in this manner, it's easy and it allows you to have music playing along while they load. Isn't STOS great?

PROCEDURES?

I started programming in BASIC when ZX80's were the vogue but in the past five years I have been using PASCAL on IBM (wash your mouth out with soap) compatibles, the beauty of PASCAL is that it allows the programmer to construct procedures of often used routines that can be saved and included with the main program when it is compiled. Any procedure could be then executed by typing it's name. STOS does not have procedures, but it does have subroutines which can do a similar job. In the last issue I presented a replacement input routine for you to use and this issue's useful subroutine is a little window routine that uses the mouse to select one of two possible answers (in my example, PROGRAM 2, I have chosen YES or NO). It's quite simple to use, all you do is include lines 5000-5180 in your own programs, put your choices in the variables PARAM1$ and PARAM2$ and put your question in the variables PARAM3$ and PARAM4$, then do a GOSUB 5000.

```
1 rem **********  YES/NO BY P.J.HICKMAN **********
10 key off : mode 0
20 PARAM1$=" YES" : PARAM2$=" NO!"
30 PARAM3$="Do You Like This" : PARAM4$="Really Useful Program?"
40 gosub 5000
50 if not(ANSWER) then print "Never Mind" else print "Thank You"
60 end
70  :
80  :
4999 rem **********  window routine  **********
5000 X1=10 : X2=X1+12 : Y=9 : XS=7 : YS=5 : ANSWER=0
5010 change mouse 2
5020 limit mouse X1*8, Y*8 to (X2+XS-0)*8, (Y+YS-3)*8
5030 windopen 3, 0, 0, 40, 4, 2
5040 centre PARAM3$ : cdown : centre PARAM4$
5050  :
5060 windopen 1, X1, Y, XS, YS, 2 : curs off : print : print PARAM1$;
5070 windopen 2, X2, Y, XS, YS, 2 : curs off : print : print PARAM2$;
5080 set zone 1, X1*8, Y*8 to (X1+XS)*8, (Y+YS)*8
5090 set zone 2, X2*8, Y*8 to (X2+XS)*8, (Y+YS)*8
5100  :
5110 TEMP=0 : TEMP2=0
5120 repeat
5130 TEMP=zone(0) : TEMP2=mouse key
5140 until (TEMP)0 and TEMP2=1)
5150  :
5160 if TEMP=1 then ANSWER=-1
5170 windel 1 : windel 2 : windel 3 : limit sprite : reset zone : change mouse
1
5180 return
```

Program 2 - a window routine

HOW IT WORKS

LINE 10 clears the screen and moves to low res
LINES 20-30 set up the routines paramaters
LINE 40 calls the subroutine
LINE 50 prints "NEVER MIND" if the right hand window is clicked, otherwise it prints "THANK YOU"
LINE 5000 sets up the positions of the windows, X1 is the x start of window 1, and X2 is the x start of window 2, XS is the width of each window, YS is the height of each window
LINES 5010-5020 change the mouse shape and limits it's movement to a certain area of the screen
LINES 5030-5040 open window 3 and print the message contained in the variables PARAM3$ and PARAM4$
LINES 5060-5070 open the two small selector windows and print PARAM1$ and PARAM2$ in each one
LINES 5080-5090 puts a zone around each selector window so the mouse's presence can be detected. I have used the formula *8 rather than the XGRAPHIC and YGRAPHIC commands because these only return coordinates within the currently selected window. If I had set up the zones before opening the windows these commands could have replaced the *8 formula
LINES 5110-5140 wait until the mouse is over one of the windows and the left button is pressed
LINES 5160-5180 set the variable ANSWER to 0 or -1 depending upon which window was selected, clear the screen and then returns from the subroutine

If you like the program perhaps you could improve it by using the XGRAPHIC and YGRAPHIC commands together with the DIVX and DIVY commands to create a version that would work in any resolution, if you do then send it in I'd love to see it.

A MINI MINTER?

The third (and last) program for this issue has been sent to me by James Tetlow, who has written a simple (but interesting) demo inspired by Jeff Minter's Trip-A-Tron. The instructions for this program are quite simple, after typing in the title of your masterpiece moving the mouse around will produce spectacular patterns, selecting F1-F8 will change the colour palette and pressing the right mouse button stops the program drawing and starts the colour cycling routine.

HOW IT WORKS

LINES 110-140 set up the display
LINES 150-160 ask the user to input a title for the work of art that he/she is about to create
LINES 190-200 set the text colour to black (the same as the background) and prints the title which is contained in the variable T$
LINE 230 creates a enlarged copy of the invisible text with the ZOOM command and puts it onto screen 10
LINE 240 copies the giant title to the current screen.
LINE 280 sets up a new colour palette and makes the giant title appear instantly by changing colour 1 from black to red.

LINES 320-340 set up the initial variables for the drawing routine
LINES 350-360 these are the interesting lines which draw the pattern on the screen, try changing the values to achieve different effects
LINES 370-420 check the mouse keys and jump to the appropriate line accordingly
LINE 450 cycles colours 1-15 (the STOS default) with a delay of 3/50ths of a second
LINES 490-520 change the palette and continue the colour cycling depending on which FKEY you press
LINES 550-630 make up the subroutine which changes the colour palette, play about with the values to produce your favourite colour scheme

```
10 rem **************************
20 rem *                        *
30 rem *    LIGHT-RAY DRAWING    *
40 rem * BY JAMES TETLOW,  AGE 14 *
50 rem *   30TH SEPTEMBER 1989   *
60 rem * ---------------------- *
70 rem * NEW ATARI USER MAGAZINE *
80 rem *                        *
90 rem **************************
100  :
110 fade 3 : wait 21
120 mode 0 : key off : hide on : curs off
130 click off : I=3
140 fade 3, $0, $777 : pen 1
150 input "TITLE? ";T$ : T$=upper$(T$)
160 if len(T$)>=40 or T$="" then clw : goto 150
170  :
180 rem ********** DRAW BIG TITLE **********
190 colour 1, $0
200 clw : pen 8 : print T$
210 reserve as screen 10
220 cls 10
230 zoom physic, 0, 0, len(T$)*8, 8 to 10, 0, 170, 319, 193
240 screen copy 10 to physic : screen copy 10 to back
250 erase 10
260  :
270 rem ********** SET UP INITIAL COLOUR PALETTE **********
280 palette $0, $100, $200, $300, $400, $500, $600, $700, $700, $710, $720,
$730, $740, $750, $760, $770
290 limit mouse 0, 0 to 319, 79
300  :
310 rem ********** MAIN LOOP **********
320 for G=0 to 319
330 I=I+1 : if I=64 then I=4
340 ink I/4
350 plot G, y mouse : draw to x mouse, G/4
360 plot G, 159-y mouse : draw to x mouse, 159-G/4
370 F=fkey
380 if F<>0 then gosub 550
390 if mouse key=1 then run
400 if mouse key=2 or mouse key=3 then 450
410 wait 1 : next G
420 goto 320
430  :
440 rem ********** START INITIAL COLOUR CYCLE **********
450 shift 3
460 limit mouse 0, 0 to 319, 199
470  :
480 rem ********** LOOP TO TEST FOR FKEYS **********
490 F=fkey
500 if F<>0 then gosub 550 : wait 21 : shift 3
510 if mouse key=1 then fade 3 : wait 21 : default : end
520 goto 490
530  :
540 rem ********** CHANGE PALETTE SUBROUTINE **********
550 if F=1 then fade 3, $0, $1, $2, $3, $4, $5, $6, $7, $7, $107, $207, $307,
$407, $507, $607, $707
560 if F=2 then fade 3, $0, $100, $200, $300, $400, $500, $600, $700, $700,
$710, $720, $730, $740, $750, $760, $770
570 if F=3 then fade 3, $0, $10, $20, $30, $40, $50, $60, $70, $70, $170, $270,
$370, $470, $570, $670, $770
580 if F=4 then fade 3, $0, $101, $202, $303, $404, $505, $606, $707, $707,
$717, $727, $737, $747, $757, $767, $777
590 if F=5 then fade 3, $0, $100, $200, $300, $400, $500, $600, $700, $700,
$711, $722, $733, $744, $755, $766, $777
600 if F=6 then fade 3, $0, $1, $2, $3, $4, $5, $6, $7, $7, $106, $205, $304,
$403, $502, $601, $700
610 if F=7 then fade 3, $0, $101, $202, $303, $404, $505, $606, $707, $707,
$616, $525, $434, $343, $252, $161, $70
620 if F=8 then fade 3, $0, $1, $2, $3, $4, $5, $6, $7, $7, $16, $25, $34, $43,
$52, $61, $70
630 clear key : return
```

BYE .. BYE

That's about it for this issue, my thanks go to Richard Vanner at Mandarin and Aaron Fothergill of Shadow Software for the generous offer of prize's for the competition, and also to Purple PD (an Amiga public domain library) for the great program that allowed my Amiga to read ST disks, a utility which I used to great effect in transferring some STOS stuff to AMOS. In two months time I should be able to review STOS Vidi ST, STOS 3D, Stephen Hill's new STOS book, STOS musician and any other stuff that had not winged it's way to me by this issue's deadline. On the programming side I should (if all goes well!!) be presenting a few new scrolling demo's, another useful routine and some utility programs.

Just a quick reminder, before I go, about the STOS CLUB. If you wish to join, it costs £10 for six bi-monthly issues and really is pretty handy. Membership allows you access to a STOS telephone helpline and other useful things. So if you need a STOS 'fix' between issue's of New Atari User send a Cheque or Postal order for ten quid made payable to "Aaron Fothergill (STOS CLUB)" to the following address, and don't forget to include your STOS serial number.

STOS CLUB
1 LOWER MOOR
WHIDDON VALLEY
BARNSTAPLE
N. DEVON
EX32 8NW

Lots of people have been sending me their programs over the past couple of months, all of your contributions are very much appreciated. I'm planning to do a major rewrite of the INPDATA and OUTDATA accessories to include all of your useful additions (some of which clash at the moment) but soon it will be possible to save partially re-entered data as well as other fab additions. If you wish to send me any programs for the column or PD library, or if you have any nasty problems with STOS, I can be found typing away at the address below. Any disks you send will be returned as soon as possible but please remember to include an S.A.E. if you wish an ultra speedy reply (James Tetlow was amazed by the letter he received 48 hours after writing to me!!).

The address is
PETER HICKMAN
36 CLEVERLY ESTATE
WORMHOLT ROAD
LONDON
W12 OLX

BACK ISSUES *Only these issues are now available!*

PAGE 6 back issues represent an excellent way of increasing the enjoyment of your Atari with articles to enlighten you, programs to type in and reviews of software to guide you. Almost all of the content of past issues are as fresh and relevant today as when they first appeared. Disks are available for all issues, containing all the 8-bit programs from each issue ready to run, and they often include bonuses not found in the magazine.

SOLD OUT The following issues are SOLD OUT

All prior to Issue 21 and Issues 25, 26, 27, 28, 29, 30 and 35

VERY LIMITED SUPPLIES We have less then TEN remaining copies of each of the following issues and suggest that you phone if you want copies.

Issues 22, 23 and 24

This could be your last chance!

ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.

DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus others

ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.

DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro', utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.

DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.

DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 36 - Another cracking machine language game from Paul Lay called STAR RIDER plus HEADBANGER, also in machine code, MUSIC BOX and SYNTH II to type in. MAPPING YOUR ADVENTURE shows you how to succeed in adventures, 850 SPLIT reveals secrets about the 850 interface, DESIGNER KEYS allows you to customise the keyboard. Then there's BEGINNER'S BASIC plus a new series on TURBO BASIC, reviews of MERAK, Draconus, Joe Blade and more. For the ST we have B BOOT to allow you to boot from drive B, STOS reviewed, TRIP-A-TRON, SPELLBOOK, SUPERBASE PROFESSIONAL all reviewed and you can find how to never get lost again with AUTOROUTE. All this plus much, much more.

DISK AVAILABLE - includes BONUS MACHINE CODE UTILITY to add 128 colours to Atari Artist or Micropainter pictures.

ISSUE 37 - Some excellent listings including SCROLLY TEXT EDITOR, a superb utility for creating scrolling messages on the XL/XE just like those on the ST, plus BLASTCOM, a fast and furious blast 'em up, and SUNPLOTTER which shows you the position of the sun and times anywhere in the world. Also FINDER for searching your programs, the first part of MACHINE CODE LIBRARY and the CASSETTE DATABASE. Loads of reviews, as usual, including SpartaDos X. ST File includes the first part in the MIDI series and coverage of PROTEXT and FLAIR PAINT plus reviews of HEADCOACH (where have you seen that reviewed elsewhere?), SPRITE MASTER and a whole host of games. Lot's more besides.

DISK AVAILABLE - includes BONUS program UNDER STARTERS ORDERS, a superb horse racing game for all the family

ISSUE 38 - A super educational prográm, MCQ-TEST, for revision, homework or fun. The MACHINE CODE library looks at saving and loading memory, a utility lists a REAL TIME CLOCK for your XL or XE and THE PODZ is a great scrolling game. There are several more listings. The TIPSTER begins and articles include THE GAMES THEY NEVER RELEASED and more on Turbo Basic. ST owners can enjoy type-in routines for graphics, reviews of MINIX, FUN SCHOOL 2, POLICE QUEST II plus loads of games. The MIDIots guide continues and John Sweeney looks at KINGS QUEST and LEISURE SUIT LARRY.

DISK AVAILABLE - includes GALACTIC CRESTA a BONUS MACHINE CODE GAME previously released commercially!

ISSUE 39 - The first type-in fishing game for the Atari, CATCH DAY, heads the way with MOUSE PARTY and a NUMERICAL CONVERSIONS UTILITY also to type in. Other features include PAGE MARSHAL, HAWKQUEST, the MACHINE CODE LIBRARY on Player Missile Graphics plus, of course, THE TIPSTER and reviews of 8-bit games including STAR WARS. The ST section includes reviews of THE JADE STONE and DOMES OF SHA, the Midiot's guide to the SEQUENCER, a new column on STOS PROGRAMMING plus many, many reviews including GOLDRUSH and GALDREGON'S DOMAIN.

DISK AVAILABLE - includes PRO GOLF as a BONUS. Superb 18 hole action with all the options plus a construction kit to build your own courses

ISSUE 40 - Read all about Sublogic, the company that brought Flight Simulation to the Atari. Programs include SHIFT IT, a mind boggling sliding puzzle game and MEAN MOTOR for fast racing. A simple educational program is LEARN TO READ which you can easily adapt and K-TYPE will improve your touch typing. All these plus the Machine Code Library, Cassette Database, The Tipster and much more. For ST fans the STOS column has type in listings and there are reviews of ARMADA, JET, BATTLETECH and many more. Also the final part in the Midiot's guide to Music.

DISK AVAILABLE - includes BONUS machine language game GRIDWARS

ISSUE 41 - Some neat 8-bit utilities including LISTIF, a new command for Basic and LC10DUMP for the Star colour printer. Games include Bill Halsall's great SNAKES ALIVE for up to twenty players! PICMATICS is a nice educational program to teach maths and articles include the MACHINE CODE LIBRARY, CONFESSIONS OF AN ADVENTURE ADDICT and more. ST users can enjoy reviews of INDIANA JONES, POSTMAN PAT, HISOFT C, DEMON'S WINTER and many, many more. There is also the first instalment of MAKING MUSIC and, of course, THE STOS COLUMN complete with type in game.

DISK AVAILABLE - includes DOUBLE BONUS of TRAKSTAR and BLOKHEAD. Two great machine language games

Disks are still available for many issues which are sold out. These contain all the programs from the issue but not the relevant articles. Please enquire if you are interested.

BACK ISSUES are £1.50 each in the UK, £2.40 for Europe or surface mail elsewhere and £3.50 for Air Mail outside Europe. Prices include postage.
ISSUE DISKS are for any 48k or 64k 8-bit Atari. Each disk is £2.95. Postage FREE in U.K. Overseas add £1 per order (any number of disks)
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